

# INTEGRATED PRELIMINARY ASSESSMENT/REMOVAL SITE EVALUATION REPORT

## WHITING ROLL-UP DOOR SITE

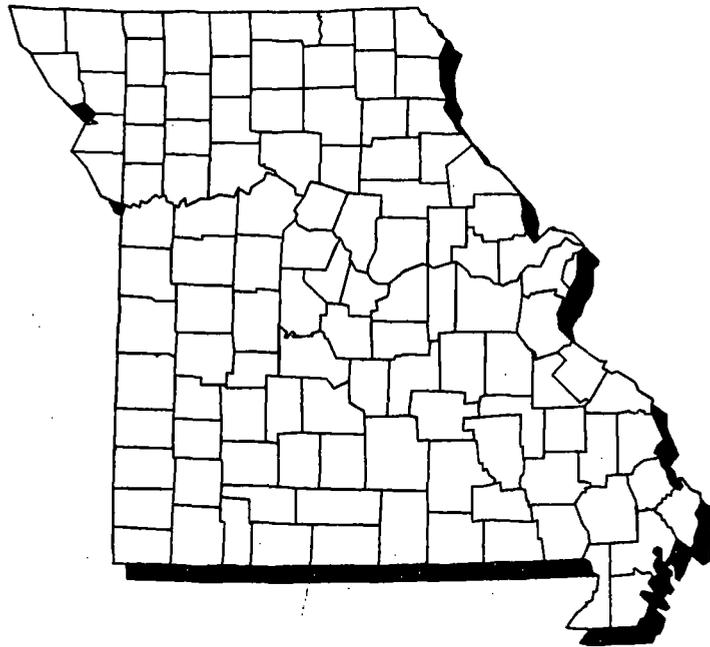
ST. LOUIS COUNTY, MISSOURI

MARCH 28, 1997

Missouri Department of Natural Resources

Hazardous Waste Program

Site: Whiting Roll Door  
ID # MO D98171011  
Break: 15  
Other: 3-28-97



30281367



Superfund

REMEDIAL ASSESSMENT DECISION - EPA REGIC.

SITE NAME: Whiting Roll up Door/ Deer Valley Site

EPA ID#: MOD 981712011

Alias Site Names: Deer Valley Site

City: Florissant

County or Parish: St. Louis

State: Missouri

Refer to Report Dated: March 28, 1997 Report type: Integrated Prel. Assessment/ Removal Site Eval.

Report prepared by: Missouri Department of Natural Resources

DECISION:

1. **Further remedial site assessment under CERCLA (Superfund) is not required because:**  
 1a. Site does not qualify for further remedial site assessment under CERCLA  
 1b. Site may qualify for further action, but is deferred to:  RCRA  NRC  
No Further Remedial Action Planned (NFRAP)

2. **Further Assessment Needed Under CERCLA:** 2a. Qualifier:  Higher  Lower  Part of NPL Site  
 Referred to Removal, Needs More Remedial  Referred to Removal, No Further Remedial  
(Site will remain as a State Lead site at this time)  
2b. Activity Type:  PA  SI  ESI  HRS evaluation  
 Other: \_\_\_\_\_

DISCUSSION/RATIONALE:

The three acre site was part of the original 28 acres that was occupied by two drum reconditioning companies, and is currently owned by Whiting Roll up Door Co. The adjacent Deer Valley Site, owned by the Teamsters, consist of the other 25 acres. During the investigation of the Deer Valley site, numerous buried drums and door tracks were excavated. The Whiting property was not included as part of the original site and investigation. During the current investigation of the Whiting Site, a geophysical survey revealed buried lagoons and potential buried drums. The PAScore is greater than 28.5, therefore, the site qualifies for further action under CERLCA. The area where the site is located has numerous karst features. There are several groundwater wells located within 1-2 miles of the site. The site has been combined with the previous named Deer Valley Site.

Report Reviewed and Approved by: Bryant Burnett Signature: *Bryant Burnett* Date: 4/10/97

Site Decision Made by: Bryant Burnett Signature: *Bryant Burnett* Date: 4/10/97

<b>EPA</b>	<b>REGIONAL HAZARDOUS WASTE SITE TENTATIVE DISPOSITION</b>	<b>REGION VII</b>	<b>SITE NUMBER MO</b>
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File this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency, Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, D.C. 20460.

**I. SITE IDENTIFICATION**

<b>A. SITE NAME</b> WHITING ROLL-UP DOOR	<b>B. STREET</b> 5015 N. HIGHWAY 67		
<b>C. CITY</b> FLORISSANT	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>D. STATE</b> MO</td> <td style="width:50%;"><b>E. ZIP CODE</b> 63034</td> </tr> </table>	<b>D. STATE</b> MO	<b>E. ZIP CODE</b> 63034
<b>D. STATE</b> MO	<b>E. ZIP CODE</b> 63034		

**II. TENTATIVE DISPOSITION**

Indicate the recommended action(s) and agency(ies) that should be involved by marking 'X' in the appropriate boxes.

RECOMMENDATION	Mark 'X'	Action Agency			
		EPA	STATE	LOCAL	PRIVATE
A. NO ACTION NEEDED - NO HAZARD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. INVESTIGATIVE ACTION(S) NEEDED (If yes, complete Section III.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. REMEDIAL ACTION (If yes, complete Section IV.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. ENFORCEMENT ACTION (If yes, specify in Part E whether the case will be primarily managed by the EPA or the State and what type of enforcement action is anticipated.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**E. RATIONALE FOR DISPOSITION** The three acre site was part of the original 28 acres that was occupied by Westerhold Cooperage Company, Evans Steel Barrel Inc., Whiting, and the Teamsters. The adjacent Deer Valley site, owned by the Teamsters, consists of the other 25 acres. During the investigation of the Deer Valley site, numerous buried drums along with door tracks from the Whiting operation, were excavated. The Whiting property was not included as part of the site. During the current investigation of the Whiting site, a geophysical survey revealed buried lagoons and potential buried drums. The PAScore is greater than 28.5, therefore, the site qualifies for further action under CERCLA. The Whiting Roll-up Door site is in an area of numerous karst features. There are a moderate number of groundwater wells located within 1-2 miles from the site. A Site Inspection (SI) is recommended. The SI should be conducted on a combined Whiting and Deer Valley site since the two sites have the same site history.

**F. INDICATE THE ESTIMATED DATE OF FINAL DISPOSITION (mo, day, yr)**

**G. IF A CASE DEVELOPMENT PLAN IS NECESSARY, INDICATE THE ESTIMATED DATE ON WHICH THE PLAN WILL DEVELOPED (mo, day, yr)**

**H. PREPARER INFORMATION**

**1. NAME**

R. Lance Livesay

**2. TELEPHONE NUMBER**

573-751-3176

**3. DATE (mo., day, & yr.)**

03/27/97

**III. INVESTIGATIVE ACTIVITY NEEDED**

**A. IDENTIFY ADDITIONAL INFORMATION NEEDED TO ACHIEVE A FINAL DISPOSITION.**

A complete source characterization and target evaluation.

**B. PROPOSED INVESTIGATIVE ACTIVITY (Detailed Information)**

1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO.	2. SCHEDULED DATE OF ACTION (mo, day, & yr)	3. TO BE PERFORMED BY (EPA, Contractor, State, Etc.)	4. ESTIMATED MANHOURS	5. REMARKS
<b>a. TYPE OF INSPECTION</b>				
(1) Site Inspection	04/01/97	STATE		SI on a combined Whiting/Deer Valley Site
(2)				
(3)				
<b>b. TYPE OF MONITORING</b>				
(1)				
(2)				
<b>c. TYPE OF SAMPLING</b>				
(1)				
(2)				

d. Type of Lab Analysis				
(1)				
(2)				
e. OTHER (specify)				
(1)				
(2)				

C. ELABORATE ON ANY OF THE INFORMATION PROVIDED IN PART B (on front and above) AS NEEDED TO IDENTIFY ADDITIONAL INVESTIGATIVE WORK.

D. ESTIMATE MANHOURS BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES	1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES
a. EPA		b. STATE	
c. EPA CONTRACTOR		d. OTHER (specify)	

IV. REMEDIAL ACTIONS

A. SHORT TERM/EMERGENCY ACTIONS (On Site and Off-Site): List all emergency actions needed to bring site under immediate control, e.g., restrict access, provide alternate water supply, etc. See instructions for a list of the actions to be used in the space below.

1. ACTION	2. EST. START DATE (mo, day, yr)	3. EST. END DATE (mo, day, yr)	4. ACTION AGENCY EPA, State, Private Party	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION; INDICATE THE MAGNITUDE OF THE WORK REQUIRED.
				\$	
				\$	
				\$	
				\$	
				\$	
				\$	

B. LONG TERM STRATEGY (On Site and Off-Site): List all long term solutions, e.g., excavation, removal, ground water monitoring wells, etc. See instructions for a list of Key Words for each of the actions to be used in the spaces below.

1. ACTION	2. EST. START DATE (mo, day, yr)	3. EST. END DATE (mo, day, yr)	4. ACTION AGENCY EPA, State, Private Party	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION; INDICATE THE MAGNITUDE OF THE WORK REQUIRED.
				\$	
				\$	
				\$	
				\$	
				\$	
				\$	

C. ESTIMATED MANHOURS AND COST BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL EST. MAN-HOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES	1. ACTION AGENCY	2. TOTAL EST. MAN-HOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES
a. EPA			b. STATE		
c. PRIVATE PARTIES			d. OTHER (specify)		

RECEIVED  
 APR 16 1997  
 SUPERVISOR



# ecology and environment, inc.

International Specialists in the Environment

Cloverleaf Building 3, 6405 Metcalf  
Overland Park, Kansas 66202  
Tel: (913) 432-9961, Fax: (913) 432-0670

## MEMORANDUM

TO: Paul Doherty, EPA/START PO

FROM: Joe Parish, E & E/STM *JD for JP*

THRU: Hieu Q. Vu, P.E., CHMM, E & E/START PM *HQV*

DATE: March 17, 1997

SUBJECT: General Technical Support: Whiting Roll-up Door Site, Florissant, Missouri

CERCLIS I.D.: MOD981712011  
TDD: S07-9701-003A  
PAN: 0396DVTGXX  
SAM: Bryant Burnett

### INTRODUCTION

The Ecology & Environment, Inc. (E & E, Inc.) Superfund Technical Assessment and Response Team (START) was tasked by the U.S. Environmental Protection Agency (EPA) Region VII Emergency Response and Removal (ER&R) program under Technical Direction Document (TDD) S07-9701-003A to assist in a state-lead investigation by performing a geophysical survey at the Whiting Roll-up Door site in Florissant, Missouri. The purpose of the geophysical survey was to delineate the lateral boundaries of former containment lagoons and provide preliminary evidence of buried drums and other wastes on site. START member (STM) Joe Parish was assigned as the project manager. The EPA site assessment manager (SAM) was Bryant Burnett.

### BACKGROUND, SITE DESCRIPTION AND SITE HISTORY

The Whiting Roll-up Door company is located at 5015 N. Highway 67 in Florissant, Missouri (Attachment A: Site Location Map). The current property owner and operator is Lauren Whiting. The

site is located in a light industrial/residential unincorporated area of north St. Louis county. The site presently occupies a 3-acre parcel that was once part of a larger 28-acre parcel, known as the Deer Valley site. The company manufactures truck trailer roll-up doors.

The site is located in one of the most heavily developed karst areas in the state of Missouri. There are dozens of sink holes in the immediate vicinity of the site. The soil is up to 40 feet thick in some areas and consists of loess and residual cherty clay, underlain by the Ste. Genevieve formation, a highly solution-weathered limestone.

The Deer Valley site was utilized by drum reconditioning companies from the 1950's through the 1960's. Former occupants were F.E. Westerhold Cooperage, which operated until 1963, and Evans Steel Barrel Inc., which operated from 1963 through 1969. Whiting purchased the property in 1969 and began operations. Whiting sold the property to the Teamsters' Local No. 682 Welfare Trust Fund in 1973. Just prior to the sale, extensive grading and cleanup had occurred at the site. The three waste containment lagoons were either filled in or leveled off during this time. In 1978, Whiting purchased back three acres of the site, which included the locations of two of the former lagoons.

Site investigations were begun by the Missouri Department of Natural Resources (MDNR) in 1986 in response to a complaint. This investigation identified possible ground water and soil contamination, and provided evidence, from aerial photographs taken during different years of site operations, that several hundred drums may have been buried on the site. In 1987, Petrolite Corporation removed several drums bearing their name from the site .

A remedial investigation (RI) was performed in 1988 by Metcalf & Associates on behalf of the Teamsters (Reference 2). During this investigation, several drums with organic contaminants were unearthed, including one at the Whiting property. In addition, a Whiting well was shown to have levels of barium and vinyl chloride which exceeded the state clean water standards. The RI recommended complete removal of the buried waste. In October 1995, the Teamsters hired O'Brien & Gere Engineers, Inc., to perform a more extensive RI. During this investigation, both whole and crushed drums were unearthed, as well as solid wastes from the door manufacturing operation. Analytical results from some of the drums identified such constituents as acetone, methylene chloride, trichloroethane, toluene, tetrachloroethene, 2-butanone, ethylbenzene, total xylenes, and styrene.

## **SITE ACTIVITIES**

On February 18, 1997, STMs Parish and Dave Kinroth met on the site with MDNR investigator Lance Livesay, and the PRP representative, Bob Johnson from Fugro Environmental. Livesay briefed the START team on the survey objectives and site history. The main objectives were to verify the location of the two former waste containment lagoons on the property and to locate areas of possible subsurface wastes, including 55-gallon steel drums. Parish suggested performing an EM-31 (electromagnetic) terrain conductivity survey, possibly followed up by magnetometer survey to verify locations of buried metal.

The team first scanned the area with the EM-31 to identify trends in conductivity to determine the survey area boundaries. From this procedure it was decided that the survey would be bounded on the north, east, and west by the perimeter fence, and extend southward to about thirty feet from the Whiting building (Attachment B, Site Sketch Map). START also scanned the area with a EG & G Geometrics proton precession magnetometer. During this operation, there was a drastic temporal change in the magnetometer readings, suggesting a magnetic storm, so it was decided to use the EM-31 instrument alone to meet the site objectives.

The team established a grid system with the aid of a surveyor's theodolite in an area measuring 160 feet north by 240 feet east (Figure 2., Attachment B). Stakes were placed at grid nodes every 20 feet east, and every 40 feet north. Later that day, the EPA Task Monitor, Bryant Burnett arrived on the site and the START team briefed him on the survey strategy. After the grid system was layed out, the team left the site for the day.

On February 19, 1997, the team met on the site with Livesay and Burnett to complete the survey. Parish marked the coordinates of each grid stake, and Kinroth and Livesay cleared brush at the western edge of the survey area , where the lagoons were allegedly located. After these operations were completed, the survey was conducted.

The survey was performed using a Geonics EM-31 terrain conductivity meter. The instrument was set to record both components of the EM field (quadrature and inphase). The quadrature is responsive to trends in terrain conductivity which is affected by such factors as soil type, porosity, and quantity of electrolytes. It can often differentiate between natural soil and fill and waste material, which may increase the abundance of electrolytes in the soil. It is also responsive to buried metal. The inphase component is not responsive to trends in soil conductivity, but under normal circumstances, is more responsive to buried

metal, particularly ferrous metal, such as buried drums. The advantage of using the two together is that it enables the interpreter to differentiate between buried metal and nonferrous contamination and subsurface wastes. This was particularly important for this investigation. The instrument has an effective exploration depth of approximately 20 feet for terrain conductivity and 10 feet for buried drums.

The survey was performed by traversing with the instrument oriented in the direction of traverse in the vertical position. The direction of traverse was alternatively northward and southward. North trending lines were surveyed along the stakes. Readings were recorded every two paces or approximately every 6.67 feet. Lateral control was maintained by recording the station number marked by stakes at 40-foot intervals. South trending lines were surveyed by traversing between the stakes, and recording the data in like manner. This technique resulted in an effective survey grid of 6.67 feet in the north direction, and 10 feet in the east direction. Approximately 600 data points were recorded. Background readings were taken at regular intervals to insure that there was no instrument drift during the survey. After the survey was completed, the data was downloaded and checked for quality. When this was completed, the team left site.

## **FOLLOWUP ACTIVITIES**

### **Discussion**

START compiled the data into two maps (Attachments C and D) using the Surfer software by Golden Software, Inc., showing both the quadrature component for trends in terrain conductivity, and the inphase component for locations of subsurface and surface metal. An interpretation map is provided as Attachment E. On both maps, anomalous areas are shown in blue and orange, while background readings are aqua in color. The blue areas are locations where the readings dipped below zero, generally indicating the presence of buried or surface metal. The orange areas are areas of either conductive highs in the soil (quadrature), or areas of buried or surface metal (quadrature and inphase). By comparing the two maps, areas of true terrain conductivity can be separated from areas of buried metal.

### **Data Interpretation**

The most striking feature of the terrain conductivity map (Attachment C, MAP 1) is the conductive high located at coordinates 40 feet east, 80 feet north. This anomalous area correlates well with the location of Lagoon A which is easily identified from aerial photographs (Attachment E, MAP 3). Comparing this map to the inphase map (Attachment D, MAP 2), shows that there is a relative lack of

buried metal in this area, except for the northern edge. This suggests that this conductive high is caused mainly from the wastes or fill material in the lagoon. The conductive high trend extends beyond the boundaries of the waste lagoon (as determined by the aerial photographs). This suggests contaminant migration, as shown on the interpretation map (Attachment E, Map 3).

A conductive high trend that appears to originate from the northwest corner of the building at coordinates 0 feet north, 80 feet east (Attachment C, MAP 1). This trend and the presence of subsurface metal, identified both in this map and the inphase map (Attachment D, MAP 2), suggests that the contamination was piped and/or discharged into trenches from the building to the lagoons (Attachment E, MAP 3). This interpretation is consistent with the site history and aerial photographs which show trenching originating from the building northward into the pond located off the property (Reference 1). In the general area of Lagoon B (Attachment E, MAP 3 and Attachment C, MAP 1), there is a conductive high trend, although it is severely masked by the presence of buried metal in this area.

Two other conductive highs are worth noting. One is located at the southeast corner of the surveyed area, and the other at the southwest corner (Attachment C, MAP 1). The former correlates well with the ash and cinders area identified by the 1989 investigation (Reference 2) (Attachment E, MAP 3). The inphase response in this area (Attachment D, MAP 2) suggests that this material has a degree of magnetic susceptibility, possibly acquired during the incineration operation. It is likely buried ash and cinder waste. The conductive high at the southwest corner has a very low corresponding inphase component, suggesting that it is a largely nonmetallic waste material of unknown origin.

The inphase survey map (Attachment D, MAP 2) identifies the subsurface and surface metal. The two most striking features are the south to north trending negative (blue) anomalies at coordinates 80 feet east, 20 feet north, and 70 feet east, 80 feet north. These are almost certainly buried pipes, that have either been disconnected or are jointed at an angle. The site history would suggest this pipe was used to discharge wastes from the building to the pond north of the survey area. Aerial photographs show a trench that correlates well with these anomalies. A more subtle buried metal trend joins these anomalies to Lagoon A, suggesting that a secondary pipe runs from the building to this lagoon that may have been used to discharge waste material. This may also have been accomplished via trenching, as suggested by the conductive high trends in this area (MAP 2).

Other buried metal features worth noting are located at the northwest corner of the site, the largest being located at coordinates 40 east, 110 feet north. These responses correlate well with the metal detector

survey from the 1988 investigation (Reference 2), and the excavation of the drum located in the general vicinity of the largest anomaly in this area. These responses suggest that the drum burial extends into the Whiting property at the northwest corner of the property.

Other minor buried metal areas of the site include locations just north of the kiln (Interpretation, MAP 3), a possible buried pipe at coordinate 230 east, 50 north, and at the southeast corner. It should be noted that the only definitive buried metal area north of the kiln is at coordinate 190 east, 60 north. Possible interferences from metals associated with the kiln precluded positively identifying the other areas shown in Map 3, although the responses suggest buried metal.

### **Burial Depth Considerations**

Because the EM-31 responds to the non-linear compilation of conductivity for all layers of earth from the surface to approximately 20 feet deep, there is no way to calculate the material thickness of anomalous sources from lateral trends in terrain conductivity. No conclusions can be drawn as to waste thicknesses, aside from site history. For buried metal, however, from practice, the instrument does not respond well to metal buried below approximately 10 feet, and at shallower depths, the instrument response is strong in the negative direction. Judging from the site history, strong negative responses (shown as blue on the maps), and experience, it can be concluded that most buried metal on site is likely at a very shallow depth, possibly less than five feet to the top of the source. This is not in any way definitive and suggests nothing about waste thickness or depth to the bottom of burial trenches.

## **CONCLUSIONS AND RECOMMENDATIONS**

START was tasked to perform a geophysical survey at the Whiting Roll-up Door site in support of an ongoing state-lead investigation. The survey, performed with an EM-31 terrain conductivity meter, was done on February 18 and 19, 1997. Results of the survey confirmed the locations of the waste lagoons and suggested that contaminants may have migrated away from Lagoon A. The results also identified other areas of possible waste disposal and suggested that the drum burial from the Deer Valley site extends onto the Whiting property from the northwest corner.

### **Removal Considerations**

This investigation provided evidence for subsurface waste materials, including buried drums, on the site. The site history and previous investigations suggest that these materials are potentially hazardous and

may be leaching into the groundwater. A removal assessment is warranted, which would include subsurface sampling and possibly an extended geophysical investigation to more clearly define anomalous areas located on the edge of the property.

### **Preremedial Considerations**

MDNR conducted a PA for the Deer Valley site in 1987, which included the three acre parcel known as Whiting Roll-up Roof site. The HRS score given was relatively low due to the low potential for human exposure. However, a new Preliminary Investigation/Removal Site Evaluation (PA/RSE) is being performed by the MDNR to assess the threat posed to human health and the environment and to determine the need for additional investigation under CERCLA/SARA or other authority in light of recent commercial and residential developments in the area, and evidences from recent remedial investigations. The geophysical survey will be used to support the PA/RSE.

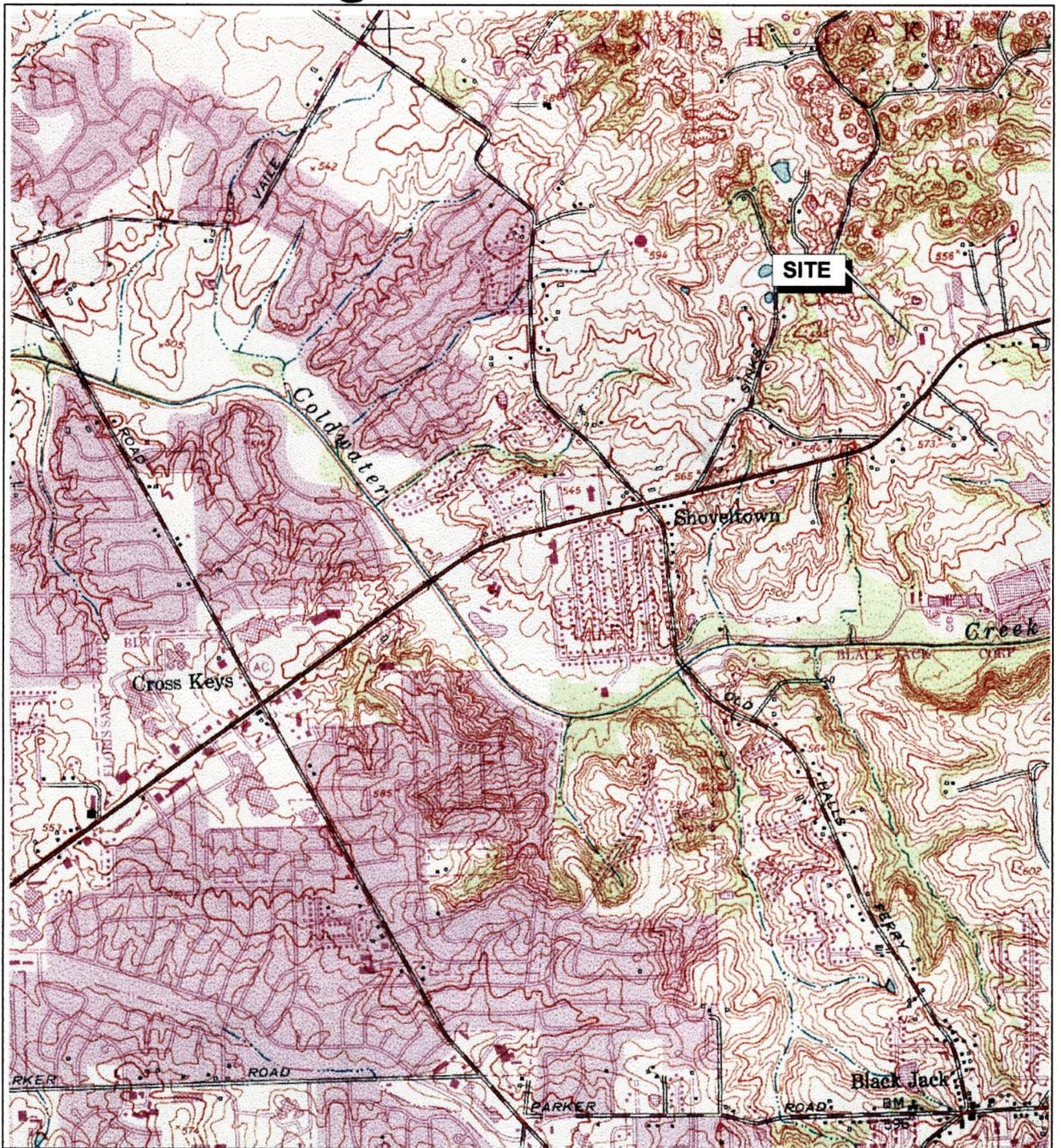
### **REFERENCES**

1. Livesay, Lance R., Superfund, Hazardous Waste Program, MDNR, Whiting Roll-up Roof Site—St. Louis County, Missouri Preliminary Assessment/Removal Site Evaluation Work Plan for Geophysical Survey, 1997.
2. Metcalf and Associates, Remedial Investigation Report, Deer Valley Drum Site, February, 1989 (MDNR-SLRO files)
3. Ecology & Environment, Inc. Technical Assistance Team, Draft Quality Assurance Geophysical Survey Plan for the Deer Valley Drum Site, North St., Louis County, Missouri, TDD# T07-9102-011.

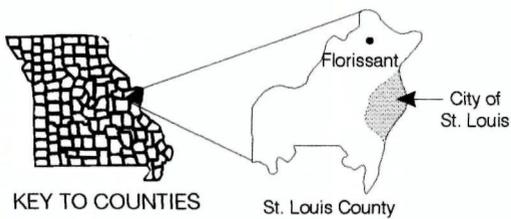
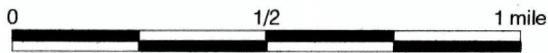
### **ATTACHMENTS**

- A: Site Location Map
- B: Site Sketch Map
- C: Map 1, EM-31 (QUADRATURE) Terrain Conductivity Survey.
- D: Map 2, EM-31 (INPHASE) Buried Metal Survey
- E: Map 3, Interpretation

**ATTACHMENT A**  
**SITE LOCATION MAP**



**SCALE**



KEY TO COUNTIES

St. Louis County

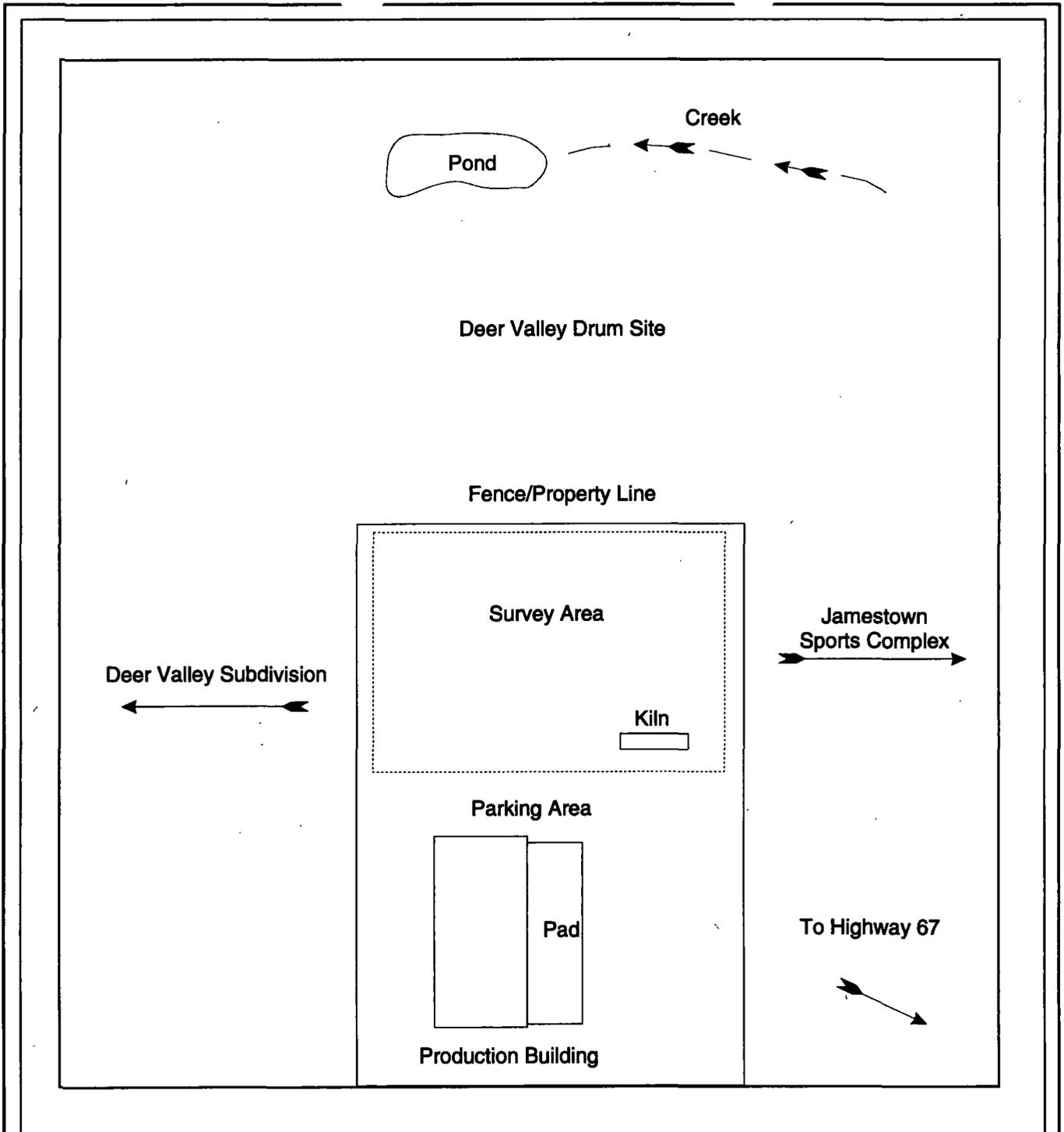


**Whiting Roll-up Door Site  
Florissant, Missouri**

TDD: S07-9701-003  
 PAN: 0396DVTGXX  
 Prepared by STM R.J. Schademann  
 March 1997

Source: U.S.G.S. Topographic Map  
 Florissant, Missouri, Quadrangle.

**ATTACHMENT B**  
**SITE SKETCH MAP**



**NOT TO SCALE**

**Whiting Roll-up Door Site  
Florissant, Missouri**

TDD: S07-9701-003  
 PAN: 0396DVTGXX  
 Prepared by STM R.J. Schademann  
 March 1997

KEY TO COUNTIES

St. Louis County

Florissant

City of St. Louis

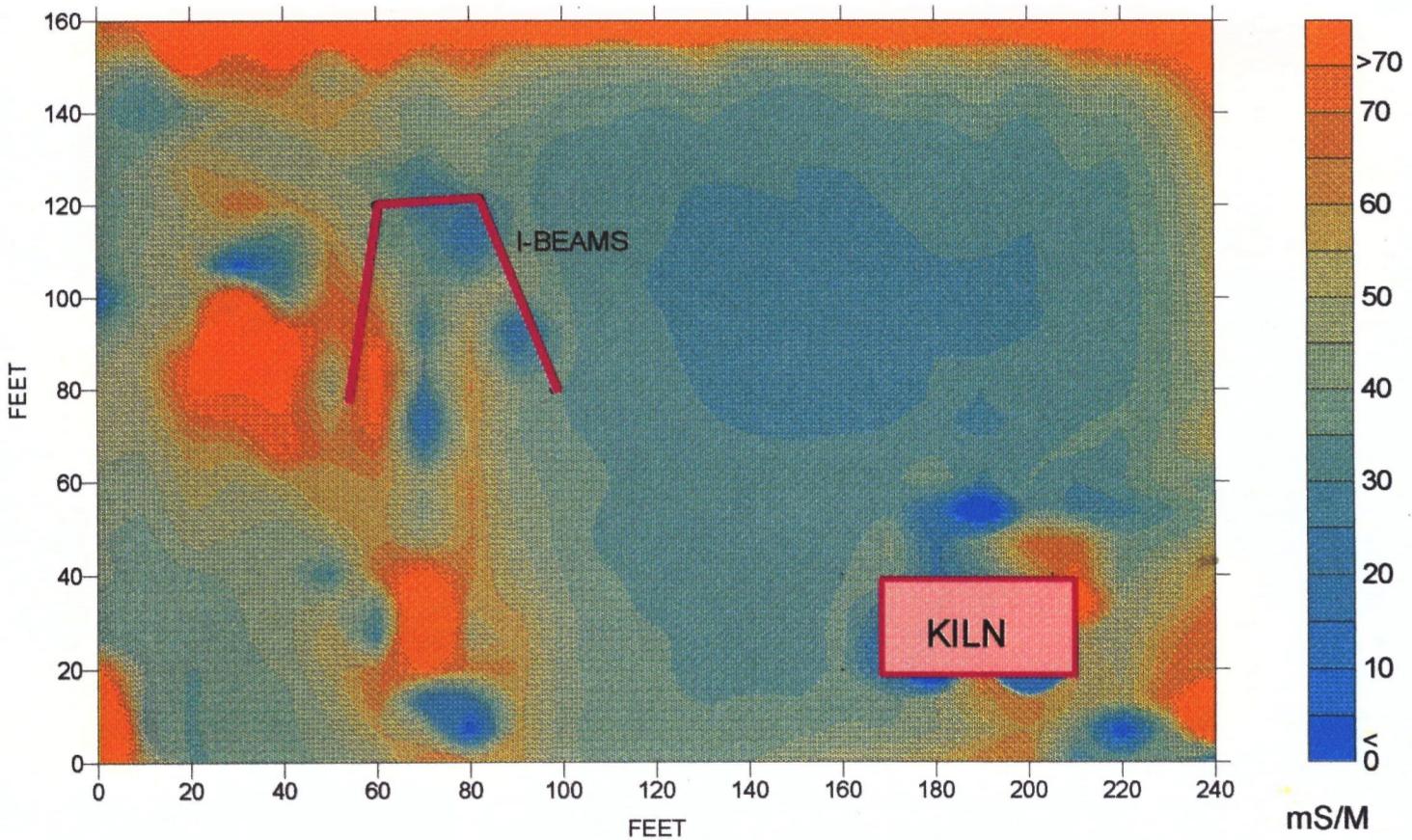
N

Source: START Sketch

**ATTACHMENT C**

**MAP 1: EM-31 (QUADRATURE) TERRAIN CONDUCTIVITY SURVEY**

# WHITING ROLL-UP DOOR SITE



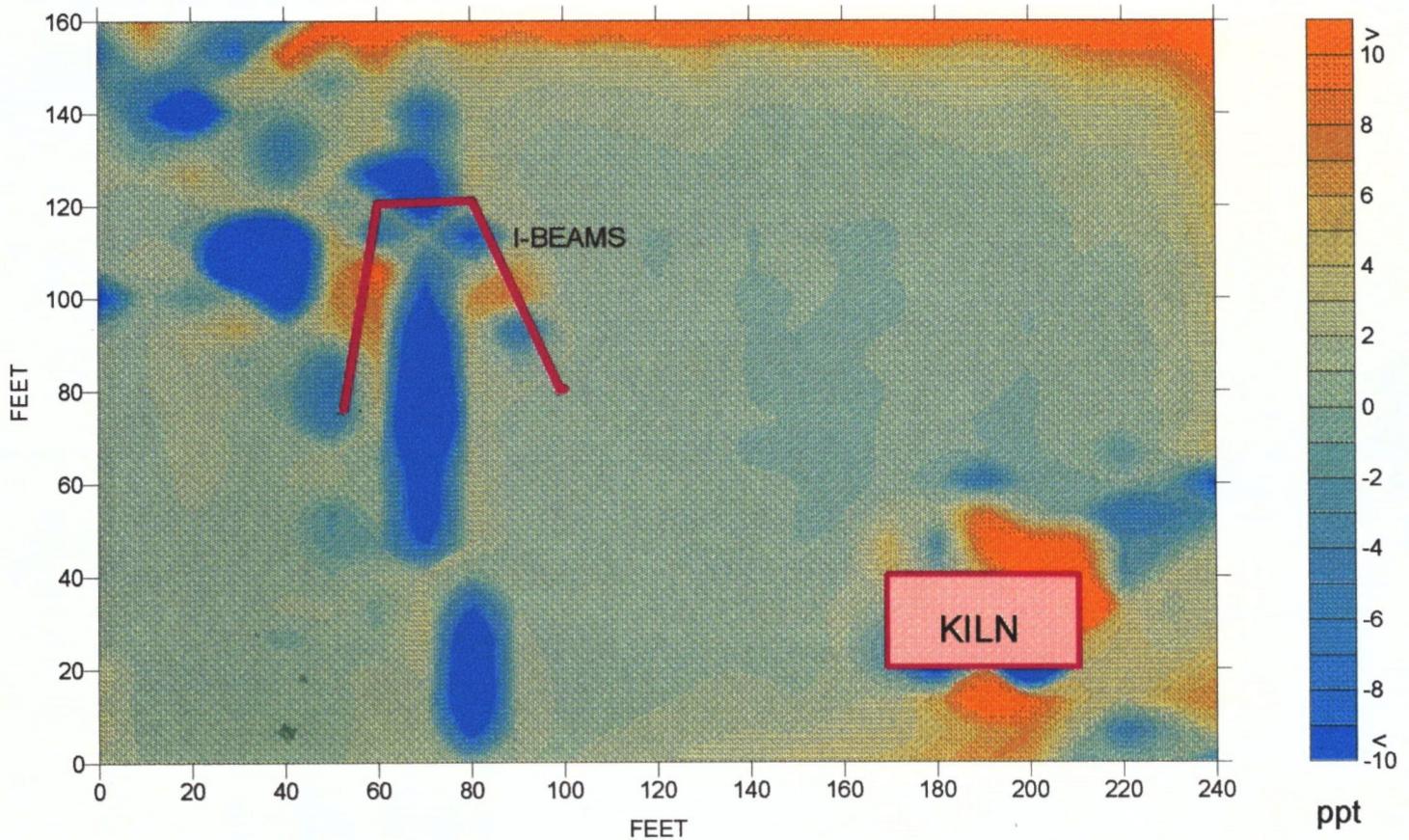
EM-31 QUADRATURE SURVEY - TERRAIN CONDUCTIVITY  
(milli-Siemens per meter - mS/M)

MAP 1

**ATTACHMENT D**

**MAP 2: EM-31 (INPHASE) BURIED METAL SURVEY**

# WHITING ROLL-UP DOOR SITE

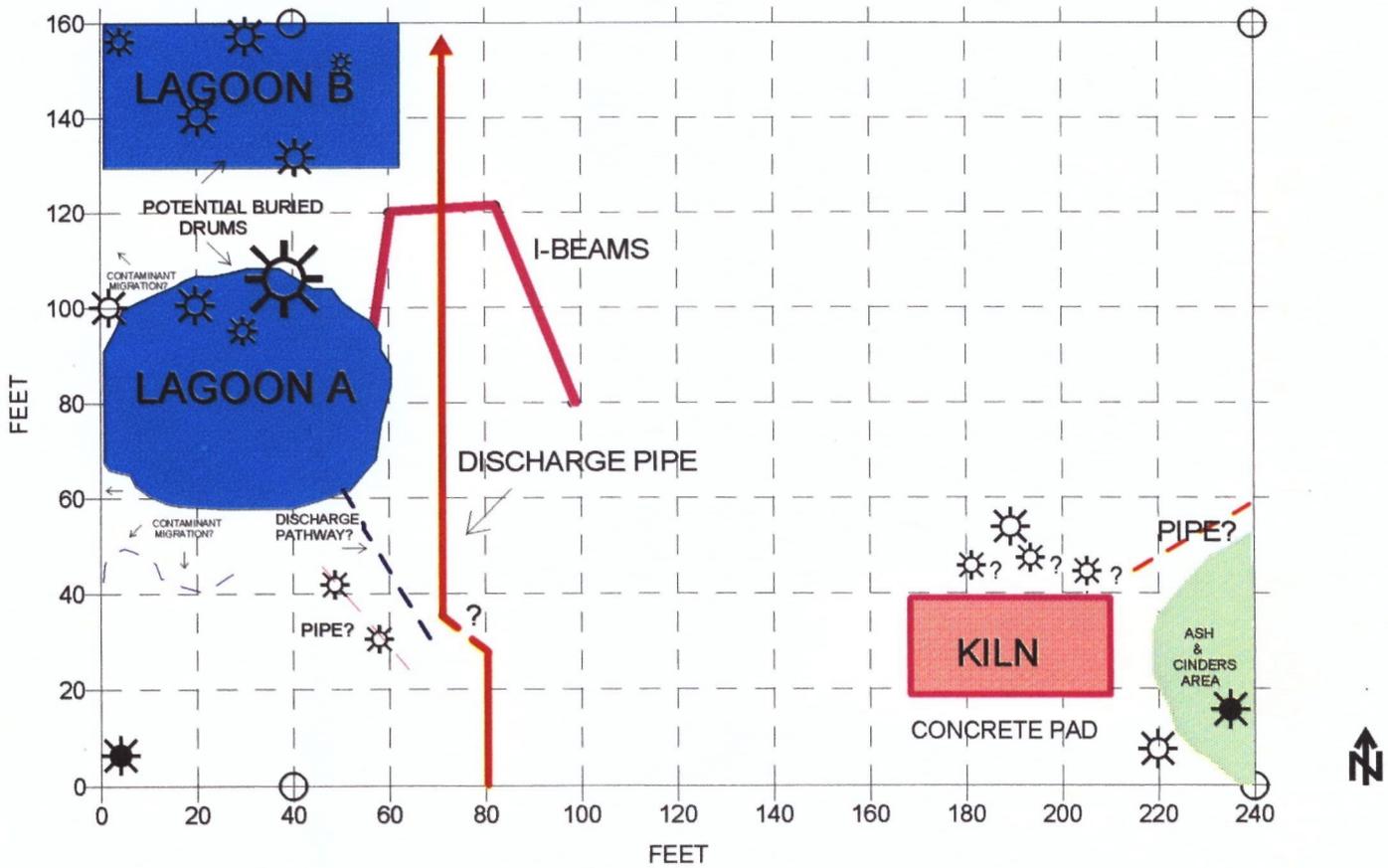


EM-31 INPHASE SURVEY - METAL DETECTION  
(parts per thousand - ppt)

MAP 2

**ATTACHMENT E**  
**MAP 3: INTERPRETATION**

# WHITING ROLL-UP DOOR SITE



EM-31 SURVEY INTERPRETATION MAP - SCALE: 1 inch = 40 feet

## MAP 3

### KEY

-  BURIED METAL
-  SUBSURFACE WASTE
-  REBAR GRID LOCATORS

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**

Mel Carnahan, Governor • David A. Shorr, Director

DIVISION OF ENVIRONMENTAL QUALITY  
P.O. Box 176 Jefferson City, MO 65102-0176

March 28, 1997

Mr. Bryant Burnett  
Site Assessment Branch  
Superfund Division  
U.S. EPA, Region VII  
726 Minnesota Avenue  
Kansas City, KS 66101

RECEIVED

MAR 31 1997

SUPERFUND DIVISION

RE: Report for Whiting Roll-up Door Site

Dear Mr. Burnett:

The Site Evaluation Unit has completed the Integrated Preliminary Assessment/Removal Site Evaluation Report for the Whiting Roll-up Door site in Florissant, Missouri. This report was prepared in accordance with the Guidance for Performing Preliminary Assessments and the components of the Hazard Ranking System. A copy of the report is enclosed for your review. A tentative disposition form is also enclosed.

The PAScore is greater than 28.5, therefore, the site qualifies for further action under CERCLA. The groundwater pathway is the greatest concern at this site, particularly with the karst terrain. A Site Inspection (SI) is recommended. The SI should be conducted on a combined Whiting and Deer Valley site.

The site history is the same for both sites, since they were part of the same property. An SI was conducted on the Deer Valley site in 1989, but the site did not qualify for additional CERCLA action because of the lack of groundwater targets at that time. Current information shows a moderate number of private wells located within 1-2 miles of the site(s).

Three primary factors justify combining the two sites. When the Deer Valley site was discovered, all areas impacted by suspected contaminants should have been included as part of the site. The affected areas would have included the Whiting property since CERCLA defines the site as being the aerial extent of suspected or known contamination. Secondly, current information shows that at one time the two drum reconditioning companies, Whiting Roll-up Door, and the Teamsters all owned/operated/leased the entire 28-acre property up until 1980. That is when Whiting Roll-up Door purchased the three acres they currently occupy. All

Mr. Bryant Burnett  
March 28, 1997  
Page Two

activities related to the accumulation of drums and lagoons, as well as the burial of drums and lagoons, occurred when the property was one parcel of 28 acres. Thirdly, combining the Whiting and Deer Valley sites would make further characterization and cleanup more efficient and cost effective.

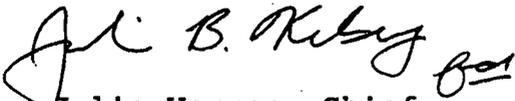
The Teamsters', current owners of the Deer Valley site property, have applied to Missouri's Voluntary Cleanup Program (VCP). DNR plans to proceed with the SI for the entire site and coordinate closely with our VCP Section. DNR's goal is to get the other potential responsible parties to participate in the cleanup of the site.

The combined Whiting Roll-up Door and Deer Valley sites should be addressed as the Whiting/Deer Valley site. A discovery form for the Whiting site was forwarded recently to EPA Region VII. However, it is not known if an ID# has been assigned as of this date. This new site could be given a new EPA ID#, or the existing Deer Valley ID# (MOD981712011), or the newly-assigned Whiting Roll-up Door ID# could be used.

If you have questions, or need additional information, please contact Mr. R. Lance Livesay, of my staff, at (573) 751-3176.

Sincerely,

HAZARDOUS WASTE PROGRAM



Julie Warren, Chief  
Site Evaluation Unit

JW:rln

Enclosures



# INTEGRATED PRELIMINARY ASSESSMENT/REMOVAL SITE EVALUATION REPORT

WHITING ROLL-UP DOOR SITE

ST. LOUIS COUNTY, MISSOURI

MARCH 28, 1997

Missouri Department of Natural Resources

Hazardous Waste Program

RECEIVED

MAR 31 1997

SUPERFUND DIVISION



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Gary T. Behrns  
Chief  
Superfund Section

**DATE:** March 28, 1997

**PREPARED BY:** R. Lance Livesay  
Missouri Department of Natural Resources

**SITE:** Whiting Roll-up Door Site  
St. Louis County

**C.A. NUMBER:** V007587-03

**EPA ID. NUMBER:** NA

## **1. INTRODUCTION**

Under the authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Missouri Department of Natural Resources (DNR), through a cooperative agreement with the U.S. Environmental Protection Agency (EPA), conducted an Integrated Preliminary Assessment/Removal Site Evaluation (PA/RSE) at the Whiting Roll-up Door Company site (Whiting) near Florissant, MO. The Whiting site is adjacent to the Deer Valley site. Information from several investigations of the Deer Valley site indicates that the trenches containing buried drums on the Deer Valley site may extend onto the Whiting site. Due to the history of the site area and the findings related to the Deer Valley site, a PA/RSE was initiated to determine if future removal and/or remedial work is needed. Recent information obtained from a co-owner of Whiting Roll-up Door as part of a December 1996 deposition, revealed historical information not previously available during the Deer Valley investigation. A site reconnaissance was conducted on January 23, 1997 and a site geophysical survey on February 18-19, 1997.

### **1.1 Objective of the Preliminary Assessment & Removal Site Evaluation**

The purpose of the PA portion of this investigation was to collect sufficient information concerning conditions at the site to assess the threat posed to human health and the environment as required for the PA. The purpose of the RSE portion of the investigation was to determine if buried drums and/or waste lagoon(s) exist on site. If buried drums and/or waste lagoon(s) exist, determine the number and/or volume to the extent possible. The need for additional investigation under CERCLA/SARA or other authority will be based on the findings of this investigation.

The scope of the investigation included: reviewing previous file information, site reconnaissance, conducting a subsurface geophysical survey, documenting Hazard Ranking System (HRS) factors, and collecting additional non-sampling information.

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The subsurface geophysical survey was conducted by Ecology & Environment, Inc. (E&E), Superfund Technical Assessment and Response Team (START).

**2. SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS**

**2.1 Location**

The Whiting Roll-up Door site is located at 5015 North Highway 67, near Florissant, Missouri (Reference 4). Geographic coordinates of the site are 38° 49' 18" north latitude and 90° 16' 03" west longitude (Reference 3). The projected site location is in the Northwest 1/4 of the Northwest 1/4 of the Northeast 1/4 of Section 18, Township 47 North, Range 7 East in St. Louis County (Figure 1) (Reference 4).

St. Louis County receives 33.8 inches of precipitation annually (Reference 5, p. 2). The maximum expected precipitation for a 24-hour rainfall, on a two-year return is approximately 2.5 inches (Reference 6, p. 14). The average daily maximum temperature is 87° F during summer months, and the average winter temperature is 33° F. The average wind speed and direction is approximately 12 miles per hour from the south (Reference 5, p. 2).

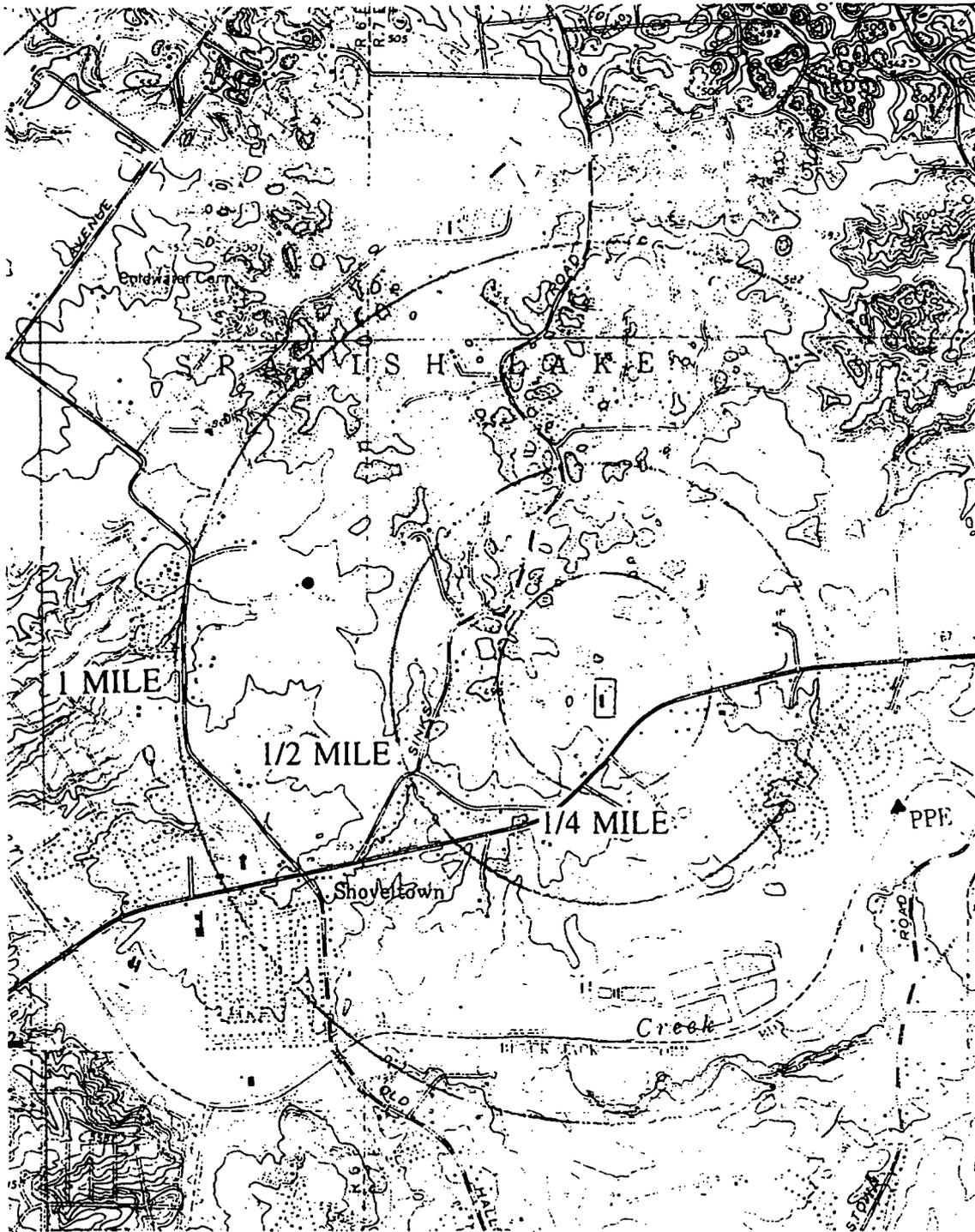
**2.2 Site Description (See Appendix A)**

The Whiting site, approximately three acres in size, is a currently operating door manufacturing facility owned by Mr. Donald J. Whiting and Mr. Lauren Whiting. The owners live in the state of New York, Erie County (Reference 7). The site is bordered on the north and east by the Deer Valley site, further east by Jamestown Sports Complex; on the west by Deer Valley Subdivision; and on the south by Highway 67 (References 4; 8).

The site is in a rural setting and located on property that has been used for commercial purposes since the 1950's. Surrounding land use is residential, light commercial, and recreational. A residential neighborhood is located west and south of the site. Approximately three residential properties with homes are located within 200 feet of the site. Access to the site is not restricted. A sign indicating a private drive is present at the entrance to the facility. A wood privacy fence partially runs on the south site boundary, and a dilapidated barbed wire fence, typical of a farm fence for cattle, is present on the west boundary. The site is bordered on the north and east by a six foot tall security fence which encloses the Deer Valley site (Reference 8).

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**Figure 1  
Site Location Map**



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The primary site structure is the building where the Whiting Roll-up Door Company manufactures truck trailer doors. This building is located on the west central portion of the site. A large concrete pad is adjacent and east of the main building. The concrete pad has numerous ringed stains from past drum storage, either by rust or from leaks. Solidified material is still present on the concrete pad (Photo 3). A representative of Whiting indicated that Whiting has not used the pad for storage of drums (Reference 8).

A kiln used for drum reconditioning during past site operations is still present northeast of the concrete pad (Photo 3,7).

The northwest corner of the site is the area that is suspected to contain buried lagoons, which will be referred to as Lagoon A and Lagoon B. See Appendix B for copy of 1967 aerial photo. This area is partially grassed, graveled, and wooded with an area near the fence being mounded. These features are shown in Photos 2, 6, and 8.

Elevations across the site range from 530 feet mean sea level (MSL) on the northern end to 540 feet MSL on the southern end, along Highway 67 (Reference 4).

### **2.3 Operational History**

The Whiting Roll-up Door Company has operated a door manufacturing facility at this location since 1969. The company manufactures truck trailer doors. A 3/4 inch piece of plywood is cut to specification and then primed with a grey primer. After priming, the hardware and steel tracks are attached. Approximately 10% of the doors are painted with a white enamel coat. A total of 150 to 200 doors are manufactured per month. Painting occurs in a small booth equipped with a water curtain (Reference 9).

The three acre site occupied by Whiting was once part of a larger 28 acre property. Hereafter, the term "property" will be referring to the original 28 acres. This entire 28 acre parcel was once owned, at different times, by two drum reconditioning companies, Whiting Roll-up Door Co., Lawrence J. Camie, and the Teamsters' Local No. 682 Health & Welfare Trust Fund (Teamsters). From the 1950's to 1963, F.E. Westerhold Cooperage Company operated a drum reconditioning company which was purchased by Evans Steel Barrel Incorporated in 1963. Evans Steel Barrel Inc. operated at the site as Westerhold Containers Incorporated. In 1969, the property was purchased by Mr. Lauren Whiting, of Whiting Roll-up Doors (References 10; 11).

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The entire 28 acre property, including improvements, and the building, was sold to a Mr. Lawrence J. Camie in 1974. As part of the sale, a lease agreement was signed so that Whiting Roll-up Door Company could continue operations at the site. At some time before 1979 (maybe 1974), the Teamsters purchased the property. The Whiting Roll-up Door Company continued operations at the property, and in 1980 purchased back a part of the property, approximately three acres (Reference 11). Whiting continues to operate at this location.

Evans Steel Barrel Inc. purchased steel drums for cleaning, renovation, and resale. The barrels were picked up from various customers by one of four trucks and delivered to the property for unloading and storage until the cleaning and renovation operation was started (Reference 11). An official with Evans Steel Barrel stated that due to the lack of hazardous waste regulations at the time, drums may have contained varying quantities of products (References 10; 11).

The reconditioning process started with a preliminary cleaning of barrels by dumping waste contents into a waste pit located at the rear of the building. The barrels were then placed on a conveyor belt, also located on the outside of the building, where they were run through a pre-flush operation consisting of interior cleaning with spray nozzles over an open vat. Then the barrels proceeded into the washing machine consisting of a long vat of caustic material located inside the plant where the barrels were given a second washing. From there the barrels would go through an external rinse tank with a nozzle spray to rinse the outside of the barrel free of all caustic material. The barrels would then go through an internal rinse for the inside of the barrel. The barrels were subjected to a vacuum pump siphon to remove all excess water from the inside (Reference 11).

The barrels were then sent through a chine sealer, which rolls and evens the top and bottom edges. Barrels were leak tested by compressed air. The barrels were placed into a gas fired oven to eliminate excess moisture. A brushing machine was used to remove external rust and dirt to prepare the surface for painting. Barrels were sent through a body roller to remove dents, and a beader to straighten the head on the barrel (Reference 11).

The following information on the waste lagoons and buried drums was obtained from a December 12-13, 1996 deposition of a co-owner of Whiting Roll-up Company (referred to as the "defendant" in the deposition) (Reference 11). The following are condensed summaries from some of the main issues discussed during the deposition:

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- Three lagoons or pits and a pond were present on the property when acquired by Whiting in 1969.
- According to the defendant, the building contained numerous troughs that met in the back of the building. From this point, fluids would travel through a pipe to the first lagoon (Lagoon A).
- The following is an excerpt from a 1969 letter read during the deposition "However, Evans has a waste pool on its property which contains caustic fluids and performs part of its operations outside of its building".
- In 1970, the two lagoons were "leveled off" while removing soil from behind the building. No outside soil was added to the lagoons. According to testimony, the lagoons were estimated to be three feet deep.
- When the property (entire 28 acres) was first visited by "Whiting" (the defendant) between 1967 and 1969, numerous drums were on the property. Defendant responded the number of drums "was probably over a hundred".
- Prior to purchase of the property in 1969, the quonset hut and all of the intact drums were removed. No intact drums were left behind, only partial parts of drums.
- From 1969 to 1971, drum "remnants" were piled up behind the building. Defendant indicated that the pile was approximately four feet high. The drums were subsequently crushed and buried in the same location, north and east of the main building. During the burial of these drum "remnants", it was noted in testimony that drums and Whiting door tracks were also noticed in the gully between the second lagoon (Lagoon B) and the present day pond. The defendant did not know the location of these drums and door track.
- The defendant indicated that most of the drums (drum remnants) contained no material. This is because he personally piled up many of the drums.
- The drums or "drum remnants" were buried in the spring of 1973.

### **2.3.1 Deer Valley Site Summary**

The history and operations of the Whiting site and the Deer Valley site are primarily the same. Both above-ground and buried drums have been identified and excavated on the Deer Valley site. During the PA investigation in 1987, DNR suspected that one area of buried metal (potentially drums) extended onto the Whiting site. This three acre Whiting site was not evaluated during the investigation of the Deer Valley site. The following information is a brief summary of the Deer Valley site.

Two drum reconditioning companies operated at the Deer Valley site from the 1950's through 1969. From 1969 to 1974, Whiting Roll-up Door Co. operated on site as an

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owner, and from 1974 to 1980 pursuant to a lease agreement (Reference 11). It was suspected that large quantities of waste (drums and solid wastes) were buried on the Deer Valley site from both the door manufacturing operation and the drum reconditioning operation. The site is currently owned by the Teamsters (Reference 10).

DNR first visited the site in 1986 in response to a complaint. In 1987, Petrolite Corp. removed several drums bearing their name. DNR completed a PA in 1987 and a Site Inspection in 1989. The investigations concluded that groundwater and soil contamination were present. The HRS score for the Deer Valley site was relatively low due to low potential for human exposure. EPA did not respond to a removal action request by DNR in 1989. A Registry evaluation in 1989 recommended no action due to the lack of soil data indicating contamination above Missouri Department of Health Any-Use Soil Levels (Reference 10).

On March 10, 1987, Petrolite Corporation removed a total of 22 drums from the site bearing their name. Petrolite stated that the drums contained phenolic formaldehyde resins in aromatic hydrocarbons. The company stated that the drums could have been sold to a drum reconditioner sometime in the 1960's (Reference 10).

The Teamsters' environmental contractor performed a Remedial Investigation (RI) with DNR oversight in 1988 (completed in 1989), with a final recommendation for a complete removal of buried wastes. The Teamsters instead performed a new RI. During the period from 1991 to 1993, the Teamsters were trying to obtain DNR oversight on the RI. DNR reviewed and commented on the RI in February 1993 (Reference 10).

O'Brien & Gere Engineers, Inc., on behalf of the Teamsters, conducted a subsurface site investigation at the Deer Valley site in October 1995. A total of 58 test pits were trenched in or near areas that exhibited positive readings for subsurface metallic anomalies in previous investigations. A number of test pits exposed various buried debris, ranging from whole and crushed drums to garage overhead metal door material. Most of the material was buried between six inches to two feet below the ground surface (Reference 12).

Analytical results from selected drums revealed primarily acetone, methylene chloride, trichloroethene, toluene, tetrachloroethene, 2-butanone, ethylbenzene, total xylenes, and styrene (Reference 12).

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**2.4 Waste Characteristics**

According to a recent hazardous waste compliance inspection by DNR's St. Louis Regional Office (SLRO), the Whiting Roll-up Door Company does not generate hazardous waste. The products that are used in the manufacturing of doors include a primer and a white enamel paint. Toluene is used to thin the primer on occasion. A non-hazardous sludge, determined by waste analysis, is generated by the use of a water curtain when painting. The sludge is sent to a cement kiln where it is mixed with concrete and eventually landfilled (Reference 9).

On the Deer Valley site, the contaminants detected in drum contents and surrounding soil were primarily volatile organic contaminants (VOCs), heavy metals, and chlordane. Polychlorinated biphenyls (PCBs) were also suspected to be on the Deer Valley site. Many of the drums excavated on the Deer Valley site were of a paint type material (Reference 10).

Buried lagoons are present on the Whiting site. These lagoons are suspected to have received waste liquids from the emptying and cleaning of drums during the reconditioning process from past operations. The types or categories of contaminants, especially coming from a drum reconditioning company, could be quite extensive. Information disclosed during the deposition indicated that the lagoons might have contained a caustic liquid (Reference 11).

**3.0 SUBSURFACE METALLIC SURVEY**

**3.1 Survey Activities (Reference 13)**

START conducted the survey with the Geonics EM-31 terrain conductivity meter. This instrument was set to record both components of the EM field (quadrature and inphase). The quadrature is responsive to trends in terrain conductivity which is affected by such factors as soil type, porosity, and quantity of electrolytes. It can often differentiate between natural soil and fill and waste material, which may increase the abundance of electrolytes. The inphase component is not responsive to trends in soil conductivity, but under normal circumstances, is more responsive to buried metal, particularly ferrous metal such as buried drums. The advantage of the two together is that it enables the interpreter to differentiate between the buried metal and nonferrous contamination and subsurface waste.

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The instrument has an effective exploration depth of approximately 20 feet for terrain conductivity. The EM-31 responds to the non-linear compilation of conductivity for all layers of earth from the surface to approximately 20 feet deep. There is no way to calculate the material thickness of anomalous sources from lateral trends in terrain conductivity. The instrument does not respond well to metal buried below approximately 10 feet, and at shallower depths, the instrument response is strong to the negative direction.

**3.2 Survey Locations (Reference 13; 14)**

The survey was conducted in the northern one-third of the site, which is adjacent to the Deer Valley site. The survey grid was established on a 160 feet north by 240 feet east grid by use of a surveyor's theodolite. The east-west line basically extends from one Whiting property line to the other. The survey would be bounded on the north, east, and west by the perimeter fence, and extended south to about 30 feet from the Whiting building. The kiln, three i-beams, and the wooded area along the west edge were the only obstructions encountered during the survey. Stakes were placed at grid nodes every 20 feet east, and every 40 feet north. See Appendix C for the interpretation map, the terrain conductivity map, and the metal detection map.

**3.3 Results**

The following geophysical results are based on E&E START findings and conclusions. The most striking feature of the EM-31 Quadrature Survey - Terrain Conductivity map is the conductive high located at coordinates 40 feet east, 80 feet north (Appendix C, Map 1). This area corresponds to the location of Lagoon A. Comparing this same location on the inphase map (Appendix C, Map 2), shows that there is a relative lack of buried metal in this area, except for the northern edge. START suggests that this conductive high is caused by wastes or fill material in the lagoon. START also suggests that contaminants have migrated from the lagoons (Appendix C, Map 3).

A conductive high and a presence of subsurface metal at the coordinates 0 feet north and 80 feet east are interpreted as contamination that was piped and/or discharged from the building through trenches into the lagoons (Appendix C, Map 1 & 2). This information is consistent with site history and aerial photographs, which shows trenching in this area. START indicates a conductive high in the area of Lagoon B, but masked by the presence of buried metal in this area.

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Two other conductive highs were identified during the survey. One is located at the southeast corner of the surveyed area, which correlates with the ash and cinder area that was identified in the 1989 investigation of the Deer Valley site. The inphase response suggested that this material has a degree of magnetic susceptibility. The second is located at the southwest corner of the survey area and has a very low corresponding inphase component, suggesting a largely nonmetallic waste material of unknown origin (Appendix C, Map 1-3).

The inphase survey map identifies areas of subsurface-surface metal (ferrous metal only). The two areas most significant were the north-south trending anomalies at coordinates 80 feet east, 20 feet north, and 70 feet east, 80 feet north. These were interpreted as buried pipes that have either been jointed or disconnected. Aerial photos show a trench that correlates well with these anomalies. The second buried metal trend joins the aforementioned anomalies to Lagoon A, which suggests a second pipe. This pipe could have originated from the main building, and was likely used to transport waste directly to the first lagoon. This might have also been done through trenching, which is suggested by the conductive high trends in these areas (Appendix C, Map 1-3).

A buried metal trend is also present at coordinates 40 feet east, 110 feet north, which correlates with the metal detector survey from previous Deer Valley investigations. Buried drums have been excavated on the adjacent Deer Valley site very near the largest anomaly in this area, therefore, buried drums likely extend onto the Whiting site at the northwest corner of the property (Appendix C Map 2). Other minor buried metal areas of the site are located near the kiln. These include a possible buried pipe at coordinates 230 feet east, 60 feet north, and buried metal at coordinates 190 feet east, 60 feet north, which is north of the kiln.

### **3.4 Conclusions**

Map 3 in Appendix C (Reference 13) is the EM-31 Survey Interpretation Map that incorporates the results from both the terrain conductivity and the metal detection survey. The data was compiled into two maps (quadrature and inphase) by using the Surfer software by Golden Software, Incorporated. The interpretations on Map 3 in Appendix C correlate with historical information on the site.

The primary area of concern is in the northwestern one-third of the grid area. This area encompasses the two lagoons and suspected buried drums on the Whiting property. According to grid measurements, the area of concern is approximately 0.2 acres in size.

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According to E&E START, no conclusions can be drawn from the terrain conductivity trends as to waste thickness, aside from the history of the site. E&E START also concluded that based on site history, previous similar investigations, and the strong negative responses (shown as blue on original maps, grey on report maps), indicate that most of the buried metal on-site is likely at very shallow depths, possibly less than five feet. It is highly probable that drums could have been put in the lagoons before they were filled in or graded over, thus, the detection of ferrous metal.

The estimated volume of the two combined lagoons could be in the area of 19,200 cubic feet. This is based on an area of 60 feet by 80 feet with a depth of 4 feet. The estimated number of possible buried drums on the Whiting site is considered to be small, probably less than 20.

#### **4.0 GROUNDWATER PATHWAY**

##### **4.1 Hydrogeologic Setting (Reference 15)**

The Whiting site is in an area of interesting geologic features. A dome-like structure in the bedrock exists about one mile north of the site. Oil was discovered in this Ordovician-age Kimmswick Formation in the mid 50's (Reference 16). The structure is also used for natural gas storage in the St. Peter Sandstone at a depth of approximately 1,500 feet. Propane is stored in an artificial cavern in the Warsaw Formation over 1 mile north of the site.

The shallowest bedrock at the site is the Ste. Genevieve Limestone. It is part of the sequence of Mississippian-aged limestones that make up the Post-Maquoketa Aquifer in this area. This sequence (in descending order) is made up of the Ste. Genevieve, St. Louis, Salem, Warsaw, Burlington-Keokuk, and Fern Glen formations, plus thin Devonian and Silurian formations. The shallowest regional confining unit is considered to be the Maquoketa Shale. Drinking water wells in the area generally penetrate only to the Salem or Warsaw formations. Water below a depth of 450 feet is likely to be too mineralized to be potable. Figure 2 shows the general stratigraphy on thickness and lithology of underlying formations at the site.

The Ste. Genevieve Formation is a relatively sandy limestone with minor chert. Underlying 20 to 60 feet of loess and residuum, the eroded thickness of the Ste. Genevieve at this location is 60 to 100 feet. The St. Louis and Salem limestones are somewhat more cherty and dolomitic. Their respective approximate thicknesses are 120-150 and 150-180 feet. The Warsaw Formation is very shaley in this area and may act

Figure 2  
 General Stratigraphy

Whiting Roll-Up Doors Site Stratigraphy (Generalized)				
System	Stratigraphic Unit	Composition	Thickness (feet)	Remarks
Quaternary	loess and residuum	silty clay, clay	20 - 60	
Mississippian	Ste. Genevieve Limestone	limestone, sandy	60 - 100	Useable portion of aquifer
	St. Louis Limestone	limestone, dolomitic, chert	120-150	
	Salem Formation	dolomitic limestone, chert, shale	150-180	
	Warsaw Formation	shale, limestone	80-100	probable confining unit
	Burlington-Keokuk Limestone	limestone, chert, dolomite	200 -240	This portion of "Post-Maquoketa Aquifer" probably produces mineralized water.
	Chouteau Group	limestone, shale	20-50	
Devonian		sandstone, limestone, shale	0-100	
Silurian		chery limestone	0-200	
Ordovician	Maquoketa Shale	shale	100 - 130	regional confining unit
	Kimmswick Limestone	limestone	100-145	oil production

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locally as a confining layer. Its total thickness is approximately 80-100 feet at this location. Water produced from below the Warsaw formation is likely to be mineralized, though it appears that some wells in the area extend into the Burlington-Keokuk. Oil is produced from the Kimmswick Formation at a depth of approximately 1,000 feet.

Direction of groundwater movement in the Post-Maquoketa Aquifer is unknown, but is probably to the east-northeast toward the Missouri River, but could be to the southeast toward Coldwater Creek. The yield from this aquifer is highly variable, depending on the amount of the aquifer penetrated and the number of fractures and solution cavities encountered. Depth to the static water level in the bedrock aquifer is estimated at 50 to 80 feet.

There is only one aquifer of concern at this site. This aquifer is the useable, upper portion of the Post-Maquoketa Aquifer, which would include the Ste. Genevieve, St. Louis, and Salem formations, but may extend down to include the Warsaw and part of the Burlington-Keokuk.

The primary evidence of bedrock karstification in this area is the high density of sinkholes. The upper 50 feet of bedrock is intensely weathered, and solution conduits may extend to 100 feet below the surface. The aquifer is karst.

#### **4.2 Groundwater Targets**

Though much of the area within four miles of the site is served by a public water supply system that primarily utilizes surface water, a moderate number of private water wells are present within four miles of the site. According to well logs from the Wellhead Protection Section of the Division of Geology and Land Survey (DGLS) of DNR, 16 private water wells have been drilled within 4 miles of the site since 1986. Additional logs for 24 private water wells were found in a separate well log at DGLS. Well locations appear to cluster in an area between 1 and 2 miles to the northeast of the site. The majority of the wells (25) on record are within 1-2 miles from the site, 10 of these wells have been drilled since 1986 (References 15; 17).

Table 1 illustrates the breakdown of private wells within four miles of the site. This only includes wells on record with DGLS. The population served by private wells was estimated using the St. Louis County average of 2.57 persons per household (Reference 18).

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<b>DISTANCE FROM SITE</b>	<b>NO. OF PRIVATE WELLS</b>	<b>POPULATION SERVED</b>
0-1/2	--	--
1/2-1	--	--
1-2	25	64
2-3	2	5
3-4	13	33
<b>TOTAL</b>	<b>40</b>	<b>102</b>

Currently, the well located on the Whiting property is used for hand washing and manufacturing purposes only, but was likely used for drinking water by Whiting employees during the 70's and early 80's. During a 1988 investigation, the following contaminants were detected in the well: barium, lead, carbon disulfide at 12 parts per billion (ppb), 1,1-dichloroethane at 5.5 ppb, and vinyl chloride at 5.1 ppb (Reference 10).

### **4.3 Groundwater Conclusions**

A moderate number of groundwater wells are found within the four-mile radius of the Whiting site. The number of wells above is based solely on well records and it is likely that more exist. Due to the recent development of the Florissant area, it is anticipated that more drinking water wells will be drilled in this area.

The existence of buried waste lagoons in an area of karst terrain is a significant concern at this site. It is likely that the lagoons were not constructed to prevent leakage (i.e. liner). Due to the numerous karst features in the area, shallow groundwater contamination could impact area drinking water wells, springs, and creeks. Groundwater has not been characterized in this area. Only one well, the Whiting well, has been sampled during the investigations thus far.

## **5.0 SURFACE WATER PATHWAY**

### **5.1 Hydrologic Setting**

The Whiting site is located in the Lower Missouri River Basin (Reference 6, p. 9). The site is located at the southern end of the Florissant Karst area, an area of numerous sinkholes (Reference 4). Soils at the site are classified as Menfro silt loam, 5-9 percent slope. This moderately sloping, well drained soil is on ridgetops and side slopes. Permeability is moderate and surface water runoff is medium (Reference 5, pp. 15, 67).

The site is fairly level with surface water drainage from the site traveling primarily to the north and northwest. Surface water leaves the site by means of two large gullies, which make up a large sinkhole. These two gullies eventually merge into one main gully or draw in the adjacent subdivision, which is immediately downgradient of the pond on the Deer Valley site (Photos 1, 4, & 5). Once surface water enters this main draw, it travels a short distance before flowing under the main road in the Deer Valley subdivision and terminating into a large sinkhole (Photos 4 & 5). Destination of surface water from this point is unknown. This sinkhole system will greatly effect surface water drainage to the north of the site (Reference 8).

There is no clear overland route for surface water runoff to enter a perennial surface water body. Although, a groundwater to surface water release is probable due to the numerous karst features.

Coldwater Creek, a perennial water body, is located to the south, within one mile of the site. The probable point of entry (PPE) on Coldwater Creek is illustrated in Figure 1. This is considered the shortest distance from a suspected source to a perennial surface water. From this point, surface water flow in Coldwater Creek travels approximately 4.0 miles downstream to its confluence with the Missouri River. From the confluence of Coldwater Creek and Missouri River, surface water travels approximately 6.5 miles until it reaches the Mississippi River. The 15-mile surface water segment terminates 4.5 miles down the Mississippi River mid-way between mile markers 190 and 191 (References 4; 8).

Coldwater Creek is expected to have a flow rate 10-100 cubic feet/second (cfs) at the PPE. The average flow rate for the Missouri River at Hermann, MO. in 1993 was 78,400 cfs. The Mississippi River had an average flow rate of 186,100 cfs in 1993 at St. Louis, MO. (Reference 20, pp. 153, 157).

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The site is not located in a flood plain (Reference 21).

## **5.2 Surface Water Targets**

No drinking water intakes are located within the 15-mile surface water pathway. The area within the 4-mile radius, including Florissant, is served by the St. Louis County Water Company. The St. Louis County Water Co.-North intake is located on the Missouri River, upstream of the site (Reference 19, pp. 50, 136, 139).

The Missouri and Mississippi Rivers are designated waters used for livestock and wildlife watering, protection of warm water aquatic life and human health-fish consumption. The portion of Coldwater Creek downstream of the PPE is designated for livestock and wildlife watering and protection of warm water aquatic life and fish consumption (Reference 22, pp. 53, 85). In 1993, 227 pounds of commercial fish were harvested along the St. Louis County portion of the Missouri river and 1,192 pounds along the St. Louis County and City portion of the Mississippi River (Reference 23).

The federal and state-listed endangered pallid sturgeon (*Scaphirhynchus albus*) can be found within the 15-mile surface water pathway, in both the Missouri and Mississippi Rivers. The sicklefin chub and sturgeon chub, federal candidate species, also occur in the surface water pathway. Overwintering bald eagles also occur in the site area (References 24; 25).

Wetlands are located on both sides of the Missouri and Mississippi Rivers (Reference 10). Wetlands are expected to be found throughout the 15-mile surface water pathway. The nearest wetland to the PPE is located within 0.1 miles downstream and contains 0.1 miles of wetland frontage. Approximately 1.9 miles of wetland frontage are found along the segment of Coldwater Creek (Reference 26).

## **5.3 Surface Water Conclusions**

The surface water pathway consists of Coldwater Creek, Missouri River, and the Mississippi River. No overland surface water pathway was identified. The pathway terminated into a large sinkhole system northwest of the site in the Deer Valley Subdivision. Surface contamination from runoff is not considered to be significant, although, if subsurface waste [soil, drums, lagoon(s)] is exposed either through excavation or erosion, this could impact the adjacent Deer Valley Subdivision. For example, a large erosional gully exists at the boundary of the subdivision and the Whiting site in the area of the first lagoon. Continued erosion could potentially expose the buried lagoon.

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A release to surface water is possible, not by overland flow, but by means of a groundwater to surface water release. Shallow groundwater could release to either Coldwater Creek to the south or the Missouri River to the north. Coldwater Creek is located within a one mile radius of a suspected source on the site. The existence of numerous karst features in the area indicates a high probability for groundwater discharge to surface water.

Due to the distances involved and the high flow rates of the Missouri and Mississippi Rivers, potential contaminants are not expected to have an effect on these two surface water bodies.

## **6.0 SOIL EXPOSURE AND AIR PATHWAYS**

### **6.1 Physical Conditions**

Soils at the site are classified as Menfro silt loam, 5-9 percent slope. This moderately sloping, well drained soil is on ridgetops and side slopes. The Menfro soils formed in thick loess, which is a fine grained material, dominantly of silt-sized particles, deposited by wind. Typically, the surface layer is brown silt loam about seven inches thick. The subsurface layer is brown silt loam about six inches thick. The subsoil is brown silty clay loam about 42 inches thick. Permeability is moderate and surface water runoff is medium. Organic matter content is moderately low. Available water capacity is very high (Reference 5, pp. 15, 67).

The three acre site is relatively flat with few obstructions. The north part of the site, the area of interest, is primarily soil with grassy vegetation. Some areas are graveled, or gravel/soil mix (Photos 2, 6-10). The natural soil surface has likely been altered due to past excavation and grading, which would result in a mixing of soil horizons or exposing a subsurface horizon to be the soil surface (Reference 8).

The site consists of the Whiting Roll-up Door Manufacturing building and the large concrete pad, which is on the east side of the building. The concrete pad has numerous ringed stains from past drum storage. Solidified material is still present on the concrete pad (Photo 3). An access drive enters from the southeastern corner of the site. The site is not adequately fenced to control access. The remnants of a former kiln still remain on site, located northeast of the concrete pad (Photo 3 & 7) (Reference 8).

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The southwest portion of the Deer Valley site and the northwest portion of the Whiting site show signs of past disturbances, which is especially evident in a 1973 aerial photo. The northwest corner of the site is the approximate location of the two closest lagoons to the Whiting building (Appendix B). From aerial photo measurements, the first lagoon (Lagoon A) and a portion of the second lagoon (Lagoon B) are within the boundaries of the Whiting site (See Appendix B & C). There is a distinct difference in surface elevation, approximately two feet, at the boundary between the Whiting site property and the Deer Valley Subdivision. Immediately across the fence, from northwest corner of the Whiting site, there are mounds of soil and drums exposed in test pits (Reference 8).

According to the geophysical survey, the largest area of buried metal debris (potentially 55 gallon drums) is present on the Whiting site in the northwest corner (Appendix C). This is likely an extension of buried drums/metal from the adjacent Deer Valley site. This is also the area of the buried lagoons. According to the geophysical survey, no buried metal is present in the low area in the northeast corner of the site, that corresponds to a disturbed area shown on a 1973 aerial photo (Reference 13; 14).

**6.2 Soil and Air Targets**

Residential areas are located west and south of the site. At a minimum, three residential properties with homes are within 200 feet of the site (Reference 8).

There are five workers at the Whiting Roll-up Door facility (Reference 9). The number of people estimated to be within the four-mile radius of the site was determined by population per square mile. St. Louis County has a population of 1,956.5 people per square mile. Table 2 illustrates the breakdown per distance ring (Reference 4; 18).

TABLE 2 ESTIMATED POPULATION WITHIN A 4-MILE DISTANCE WHITING ROLL-UP DOOR SITE, FLORISSANT, MISSOURI		
RADIUS	AREA/SQ.MILE (INTERVAL)	POPULATION
ON-SITE	NA	5
0-1/4	0.19625	384*
1/4-1/2	0.58875	1152
1/2-1	2.355	4608
1-2	9.42	18430
2-3	15.7	30717
3-4	21.98	43004
TOTAL		98300

The formula  $\pi r^2$  was used to determine area of each distance ring.

\*During the January 1997 site visit, less than 30 homes were estimated to be within 1/4 mile of the site.

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**6.4 Soil and Air Conclusions**

The geophysical survey determined that lagoons and buried metal debris, which could include drums, are present on-site in the northwest corner of the Whiting site. Other areas of possible waste disposal and buried metal have also been identified. These are likely the result of trenches and/or pipes used to transport waste to the lagoons north of the main building. Numerous excavated trenches on the Deer Valley site revealed buried drums along with metal door debris from Whiting.

The potential for exposure to suspected buried drums, waste, and/or lagoons by contact and inhalation is considered minimal at the Whiting Roll-up Door site, but the depth to these sources is not known.

Historical photos show thousands of small objects, which are presumed to be stacked drums. These "drums" are situated throughout the three acre site currently owned by Whiting. Waste management practices during the 1950's and 1960's were not as sophisticated as today's practices. There were most likely no secondary containment structures for spill or leak protection. There may have been significant amounts of spillage or leakage that occurred at this facility, primarily where drums were stored.

If wastes were spilled or leaked out, it also could be expected that due to the many years that have passed, the exposure to contaminated surface soil or risk of inhalation would be considered minimal. It is likely that contaminants would have volatilized or moved down through the soil profile, unless the contaminants that were present were immobile/insoluble in soil/water. However, this pathway should not be overlooked based on the long time frame since the drum companies operated at the site.

**7.0 SUMMARY AND CONCLUSIONS**

The Whiting Roll-up Door site, located near Florissant, is in the northeastern portion of St. Louis County, Missouri. From the 1950's to the present, the Whiting site has been operated by two drum reconditioning companies and the present truck trailer door manufacturing company, Whiting Roll-up Door Corporation. The company manufactures roll-up doors for truck trailers.

The December 1996 deposition of a co-owner of the Whiting Roll-up Door Corporation revealed a significant amount of historical information that was not formerly known during the Deer Valley investigation and during the early phases of the Whiting investigation.

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Numerous memos, letters, aerial photos, and other documents were made available during this deposition.

Two drum reconditioning companies operated at the site (property) for at least 20 years. Aerial photos showed possibly thousands of drums and large areas of disturbed earth on both the Whiting and Deer Valley properties.

A moderate number of private drinking water wells are located within four miles of the site, primarily in two areas; 1-2 miles northeast and 3-4 miles east-southeast of the site. Contaminants were detected in the Whiting well during the Deer Valley investigations. No background samples were collected, therefore, a release to groundwater could not be confirmed. The contaminants detected could be a result of well deterioration or other factors, but this should not be dismissed without further investigation. The following factors substantiate the need for a groundwater investigation: vinyl chloride exceeded the MCL, the knowledge of increasing groundwater usage in the area, numerous karst features, and the presence of buried drums and buried waste lagoons.

A surface water intake on the Mississippi River at the Chain of Rocks Bridge is located at the end-point of the 15-mile surface water pathway. This intake would not be at risk due to the distance from the site and the high flow rates of the Missouri and Mississippi Rivers.

The soil and air threat is considered minimal, but should not be overlooked.

The area of suspected metal debris (potentially buried drums) and lagoons covers an area of approximately 0.2 acres in size. This was determined by the EM-31 geophysical survey that was performed by E&E START. E&E START concluded that results from the survey confirmed the locations of the waste lagoons and suggested that contaminants may have migrated from Lagoon A. The results also identified other areas of possible waste disposal and suggested that the drum burial from the Deer Valley site extends onto the Whiting site/property from the northwest corner.

The geophysical survey accomplished one of the goals of this RSE, which was to identify areas of possible buried lagoons and drums. This was accomplished without invasive sampling through the use of a geophysical survey. Although vertical extent of lagoons/waste and the number of possible drums are not known, the horizontal extent has been established. This information will reduce the area so that future sampling events will be more efficient.

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Further action under CERCLA is recommended. Based on past and recent information made available to DNR, the Whiting site and the Deer Valley site should be combined into one site, and a SI should be conducted. Since the source areas were not sampled, a removal action is not recommended at this time. A second removal site evaluation may be warranted upon additional information obtained during the SI.

The justification for combining the two sites is as follows:

- When the Deer Valley site was discovered, all areas impacted by suspected contaminants should have been included as part of the site, which would have included the Whiting property. CERCLA defines the site as being the aerial extent of suspected or known contamination.
- An SI was conducted on the Deer Valley site, but the site did not qualify for additional CERCLA action because of the lack of groundwater targets at that time. Current information shows a moderate number of private wells located within 1-2 miles of the site(s).
- Current information shows that at one time the two drum reconditioning companies, Whiting Roll-up Door, and the Teamsters all owned/operated/leased the entire 28 acre property up until 1980. That is when Whiting Roll-up Door purchased the three acres of which they currently occupy. All activities related to the accumulation of drums and lagoons and the burial of drums and lagoons all occurred when the property was one parcel of 28 acres.
- Combining the Whiting and Deer Valley sites would make further characterization and clean-up more efficient and cost effective.

The SI on the combined site should focus on sampling of the lagoons and surrounding subsurface soil, as well as a groundwater investigation. Subsurface sampling of the buried lagoons is needed to determine if hazardous substances and/or hazardous waste is present. The estimated volume of the two combined lagoons could be in the area of 19,200 cubic feet. This is based on an area of 60 feet by 80 feet with a depth of 4 feet. A third lagoon (Lagoon C) was present just northeast of Lagoon B. This lagoon is on the current Deer Valley property.

A groundwater investigation should include the installation of temporary or permanent monitoring wells to determine if the groundwater in the site area (both Whiting and Deer Valley) is impacted by site contaminants. If contaminants are detected, sampling nearby

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private wells should also be included, which would include re-sampling of the Whiting well.

Subjective surface soil sampling should be conducted in the areas where drums were stored in the 1950's and 1960's.

Exploratory trenching in the areas of suspected buried drums is needed to determine whether buried drums are present. If the drums are indeed present, sampling of their contents must be conducted to determine whether the drums contain hazardous substances. The number of possible buried drums is estimated at less than 20 (Whiting property).

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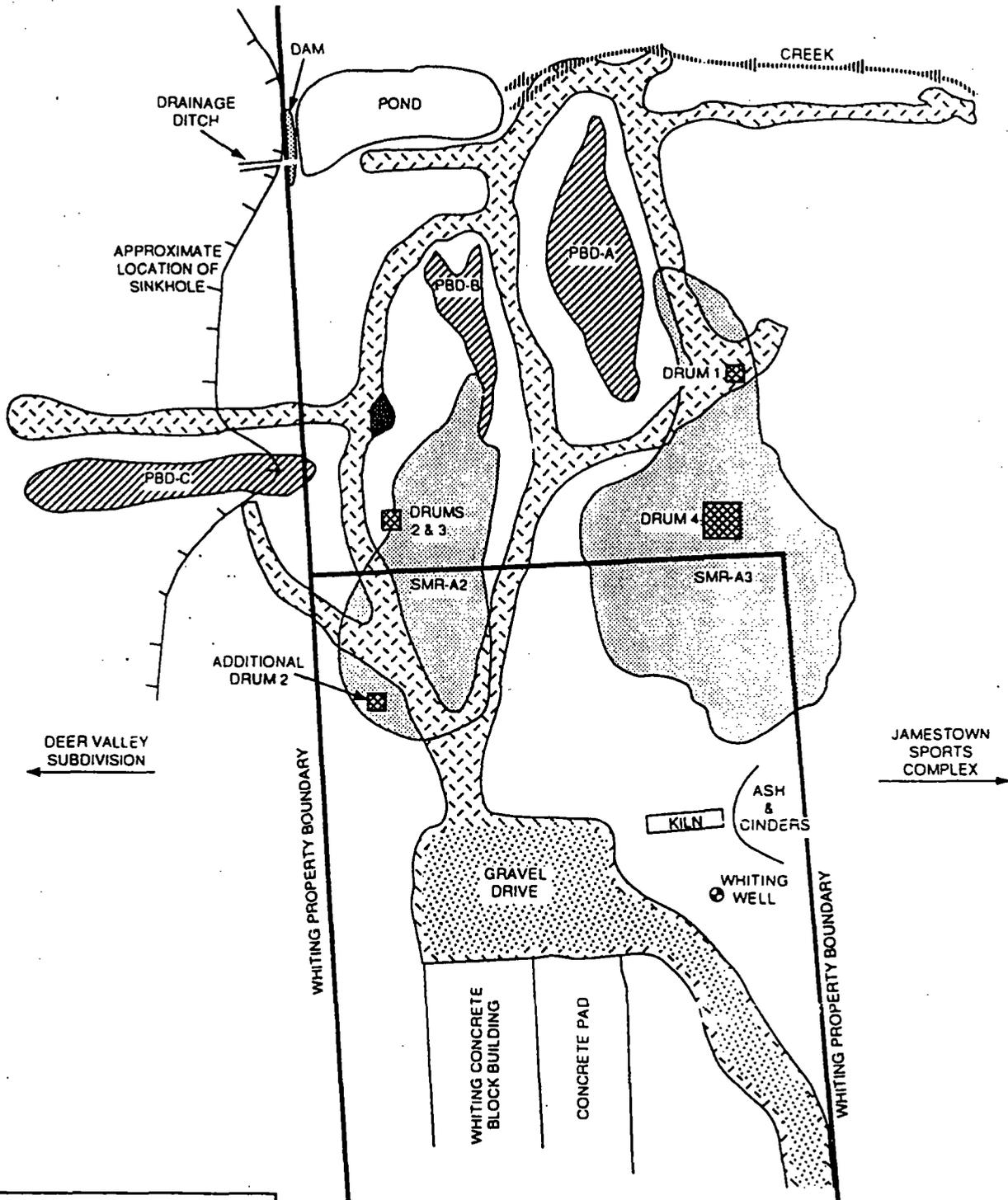
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**APPENDIX A  
SITE MAPS TAKEN FROM REFERENCES 10 & 13**



**LEGEND**

-  FORMER LOCATION OF "PETROLITE DRUMS"
-  DRUM LOCATIONS WHICH WERE SAMPLED
-  ROADS CREATED FOR RI
-  PARTIALLY BURIED DRUMS (PBD)
-  SUBSURFACE METAL READINGS (SMR)

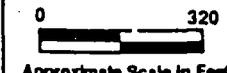
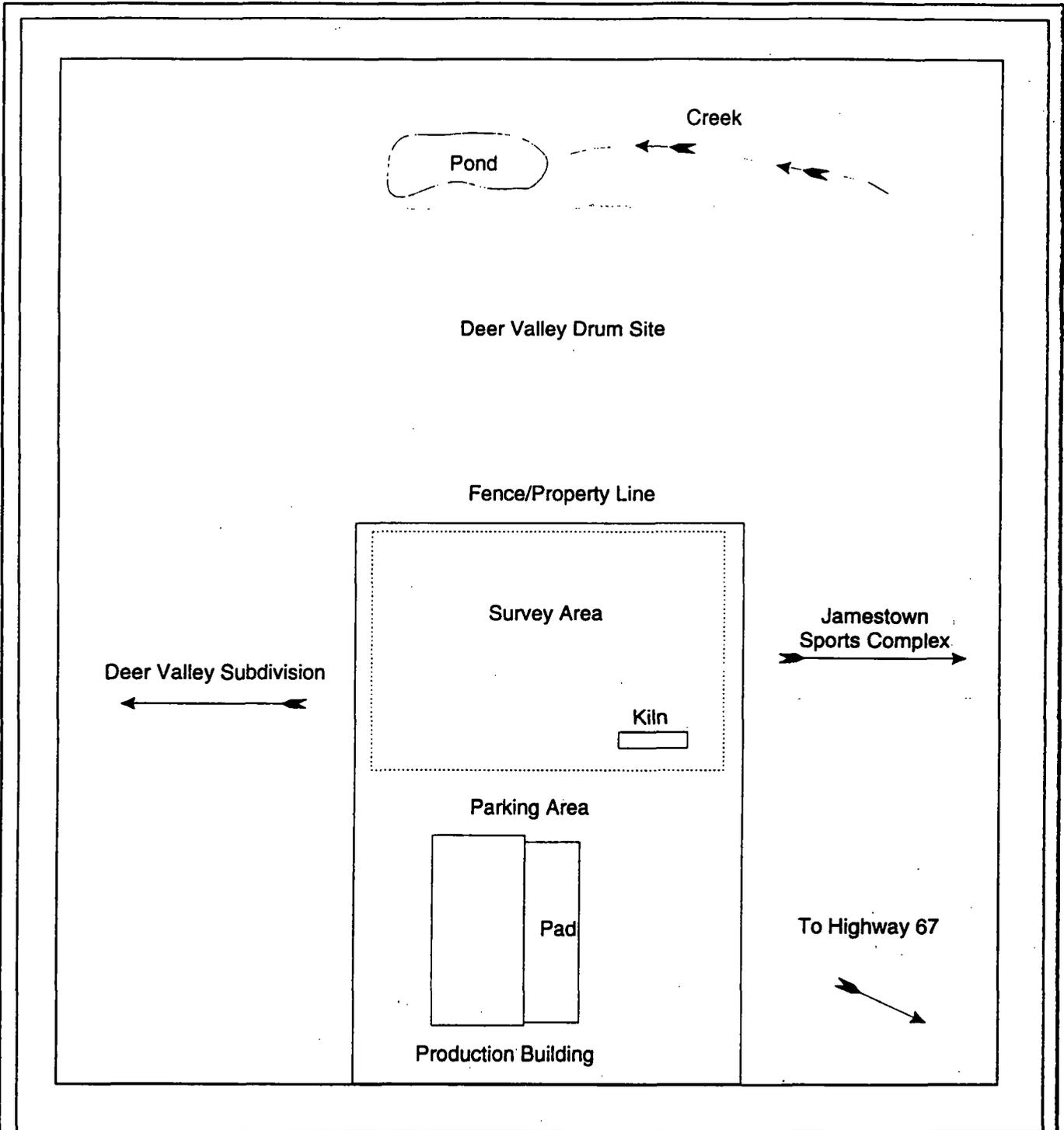
   
 Approximate Scale in Feet

FIGURE DESCRIPTION:  
**SITE MAP**  
 SITE NAME/LOCATION  
 DEER VALLEY SITE  
 FLORISSANT, MISSOURI  
 **JACOBS ENGINEERING GROUP INC.**

Source: Metcalf & Associates RI Report, 1989



NOT TO SCALE

KEY TO COUNTIES      St. Louis County

**Whiting Roll-up Door Site  
Florissant, Missouri**

TDD: S07-9701-003  
 PAN: 0396DVTGXX  
 Prepared by STM R.J. Schademann  
 March 1997

Source: START Sketch

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**APPENDIX B  
SEGMENT OF 1967 AERIAL PHOTO**

POND

LAGOON C  
50' X 31'

LAGOON B  
56' X 63'

LAGOON A  
50' X 63'

170'

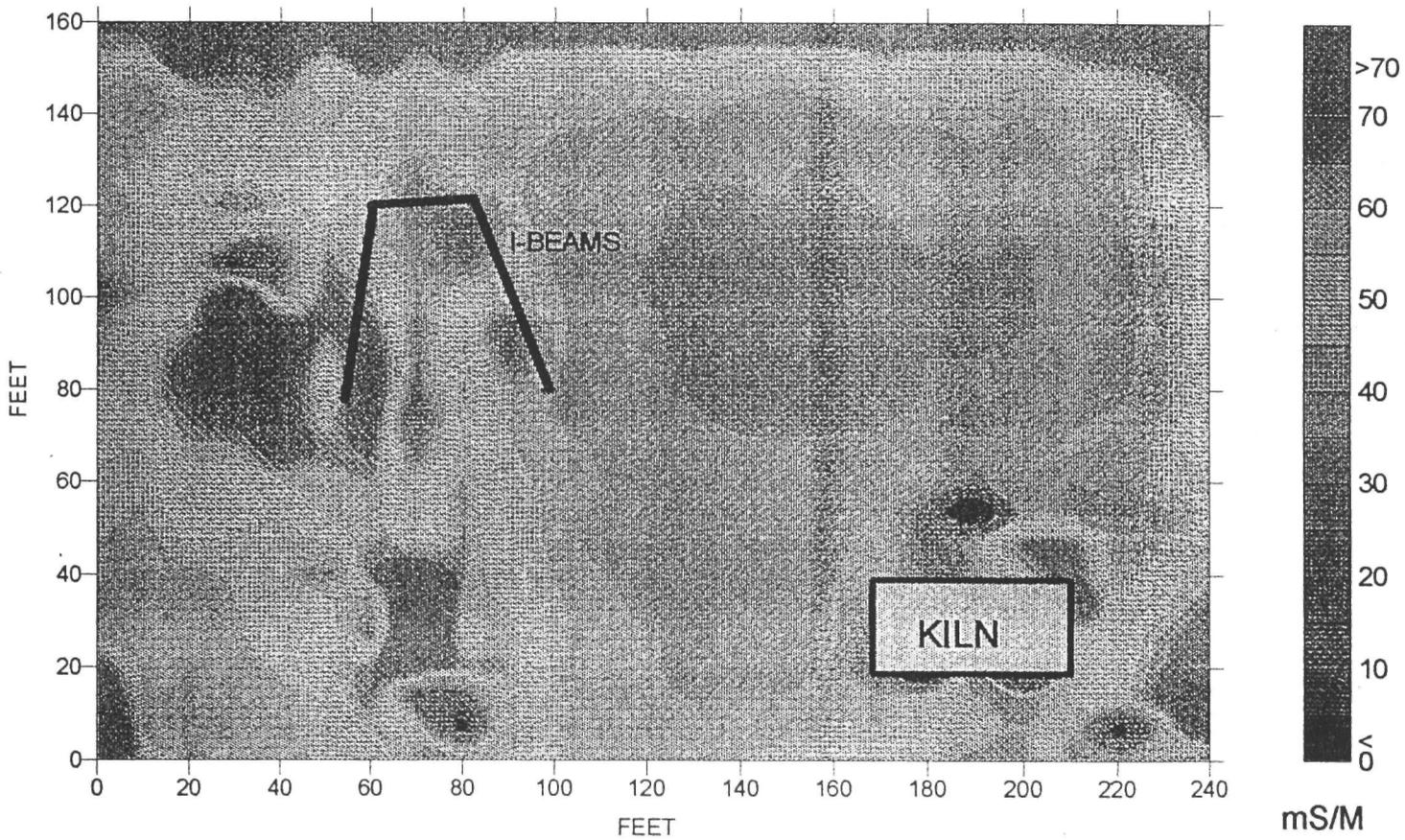
ESTIMATED  
BOUNDARY OF  
WHITING PROPERTY

1967 AERIAL PHOTO  
WHITING ROLL-UP DOOR SITE  
ORIGINAL PHOTO SCALE 1" = 100'

**Whiting Roll-up Door  
Integrated PARSE  
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**APPENDIX C  
MAPS 1-3 FROM REFERENCE 13**

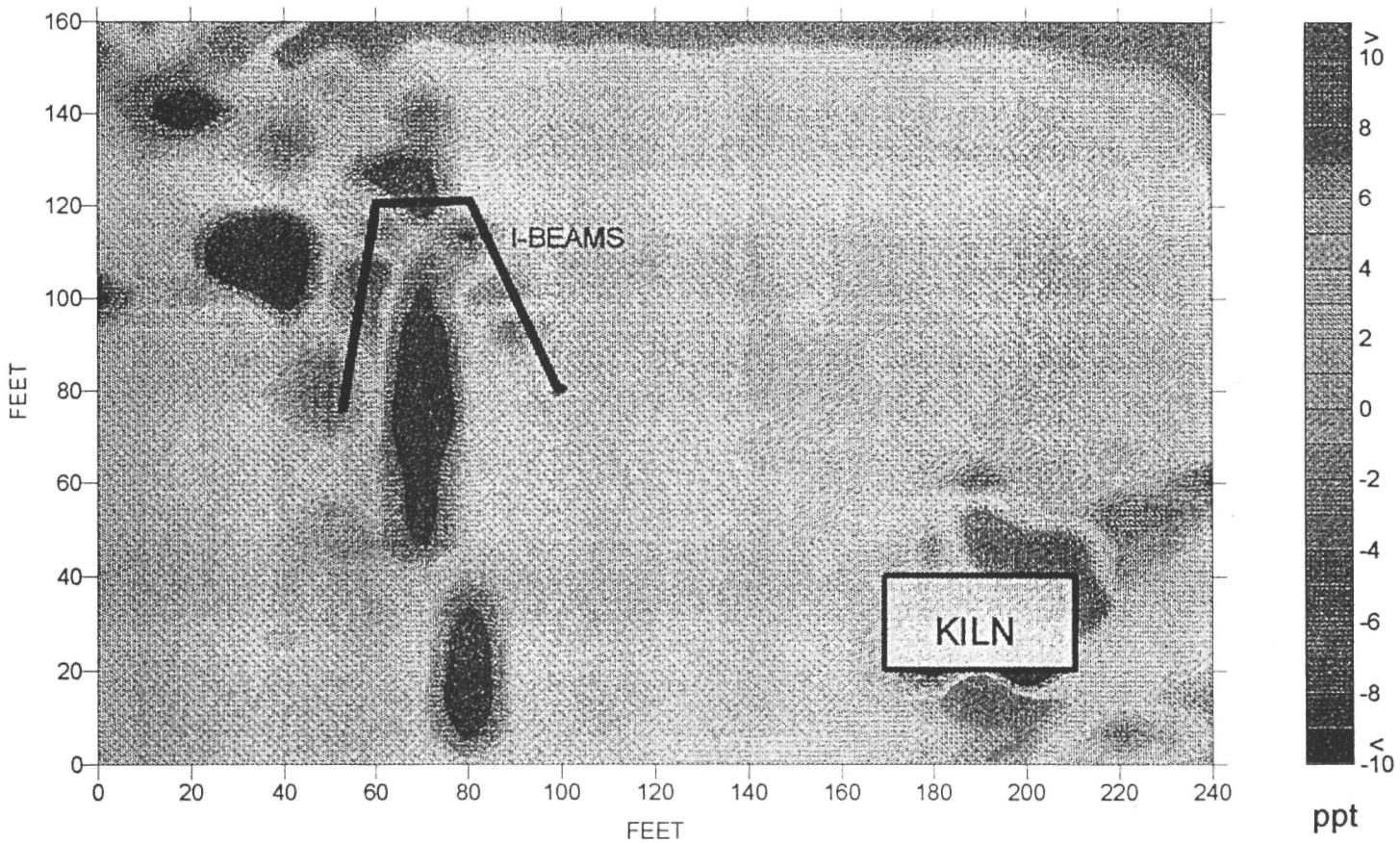
# WHITING ROLL-UP DOOR SITE



EM-31 QUADRATURE SURVEY - TERRAIN CONDUCTIVITY  
(milli-Siemens per meter - mS/M)

MAP 1

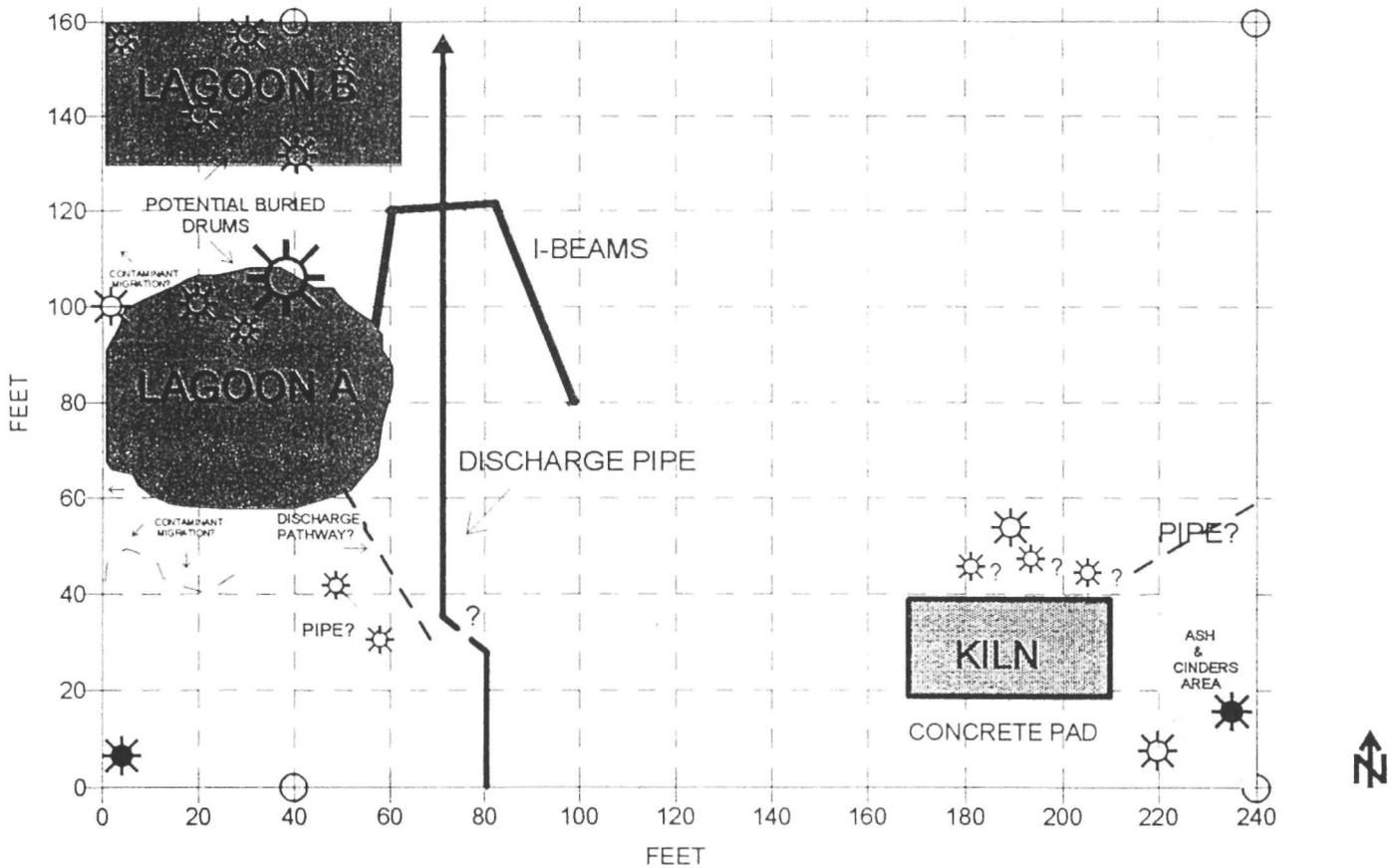
# WHITING ROLL-UP DOOR SITE



EM-31 INPHASE SURVEY - METAL DETECTION  
(parts per thousand - ppt)

MAP 2

# WHITING ROLL-UP DOOR SITE



EM-31 SURVEY INTERPRETATION MAP - SCALE: 1 inch = 40 feet

## MAP 3

### KEY

-  BURIED METAL
-  SUBSURFACE WASTE
-  REBAR GRID LOCATORS

PHOTOS

2100K A 404482-000  
500-321-0111  
SOW General Practice  
660-23444



PHOTO 1



PHOTO 3



PHOTO 2



PHOTO 4



PHOTO 5

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 1/23/97 by Lance Livesay,  
Superfund, MDNR. Looking north. Concrete  
pad adjacent to Whiting bldg. with visible stains  
from drums on the surface. #81-11

ll

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 1/23/97 by Lance Livesay,  
Superfund, MDNR. Looking east from Deer  
Valley Subd. Main gully for surface water runoff  
from Deer Valley site and Whiting site. #81-12

ll

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 1/23/97 by Lance Livesay,  
Superfund, MDNR. Same location as #81-12,  
looking west at large sinkhole. Surface water  
runoff enters, destination unknown. #81-12A

ll

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 1/23/97 by Lance Livesay,  
Superfund, MDNR. Pond on Deer Valley site  
that receives surface water runoff from both the  
Deer Valley site and Whiting site. #81-2

ll

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 1/23/97 by Lance Livesay,  
Superfund, MDNR. Taken from NW corner of  
Whiting bldg. looking northwest. Area of former  
waste lagoon/pond(s). #81-5

ll



PHOTO 6



PHOTO 8



PHOTO 9



PHOTO 7



PHOTO 10

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 2/19/97 by Lance Livesay, SPF,  
HWP, DNR. Looking north along first grid line.  
West boundary of site. #84-4

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 2/19/97 by Lance Livesay, SPF,  
HWP, DNR. E&E personnel using EM-31 along  
the west boundary of site. #84-5

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 2/19/97 by Lance Livesay, SPF,  
HWP, DNR. E&E personnel using EM-31 in  
center of grid area. #84-6

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 2/19/97 by Lance Livesay, SPF,  
HWP, DNR. Looking at northwest corner of site  
at EM-31 survey grid. Location of suspected  
lagoons. #84-2

Whiting Roll-up Door site. Florissant, MO.  
Photo taken on 2/19/97 by Lance Livesay, SPF,  
HWP, DNR. Looking at northeast corner of site  
at EM-31 survey grid. Kiln in right side of photo.  
#84-3

RSE FORM

**SUPERFUND REMOVAL SITE EVALUATION  
and  
REMOVAL PRELIMINARY ASSESSMENT**

**I. SITE NAME AND LOCATION:**

NAME: Whiting Roll-up Door

ADDRESS OR OTHER LOCATION IDENTIFIER: 5015 North Highway 67

CITY: Florissant

STATE: Missouri

ZIP: 63034

DIRECTIONS TO SITE: Take Interstate 70 east towards St. Louis, Mo., turn north on Interstate 270. Travel I-270 until you reach Highway 67, then travel north(east). The Whiting site is on the north side of Hwy 67, just past Sinks Road.

MAP ATTACHED: \_\_\_\_\_

**II. PROGRAM CONTACTS:**

REQUESTED BY: Julie Warren

DATE OF REQUEST: 10/01/96

AGENCY/OFFICE: Missouri Department of Natural Resources/Division of Environmental Quality/Hazardous Waste Program/Superfund

MAILING ADDRESS: P.O. Box 176

CITY: Jefferson City

STATE: Missouri

ZIP: 65102-0176

TELEPHONE: 573 751-3176

FAX: 573 751-7869

**SECONDARY/OTHER CONTACT:**

AGENCY/OFFICE:

MAILING ADDRESS:

CITY:

STATE:

ZIP:

TELEPHONE:

FAX:

**III. REMOVAL SITE EVALUATION CRITERIA [40 CFR 300.410(e)]**

IS THERE A RELEASE AS DEFINED BY THE NCP:

YES  or NO

EXPLAIN: Historical information indicates that drums and waste lagoons were present on the site and were buried on-site. Investigations of the adjacent Deer Valley site have revealed numerous buried drums along with door tracks from the Whiting operation. A recent geophysical survey conducted on the Whiting site has revealed buried lagoons and potential buried drums, particularly in the northwest portion of the site, which is adjacent to the Deer Valley site.

*(A RELEASE is defined as any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment of barrels, containers, and other closed receptacles containing any hazardous substances or pollutant or contaminant), but excludes: workplace exposures; engine exhaust emissions; nuclear releases otherwise regulated; and the normal application of fertilizer. For purposes of the NCP, release also means threat of release.)*

IS THE SOURCE A FACILITY OR VESSEL AS DEFINED BY THE NCP:

YES  or NO

EXPLAIN: Three waste lagoons and a pond were present during the years of operation by Evans Steel Barrel Inc. Documents indicate that the lagoons received wastes from the cleaning of drums during reconditioning. Types of wastes unknown, but expected to be of a wide range.

*(A FACILITY is defined as any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or POTW), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft or any site or area, where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel. A VESSEL is defined as any description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel.*

**SUBFUND REMOVAL SITE EVALUATION  
and  
REMOVAL PRELIMINARY ASSESSMENT**

**III. REMOVAL SITE EVALUATION CRITERIA [40 CFR 300.410(e)](continued):**

DOES THE RELEASE INVOLVE A HAZARDOUS SUBSTANCE, POLLUTANT, OR CONTAMINANT AS DEFINED BY THE NCP: YES  or NO   
 UNKNOWN

EXPLAIN: No sampling has been conducted on the Whiting site, except for a well sample that was collected during the Deer Valley site investigations. The well water sample contained barium, lead, carbon disulfide, 1,1-dichloroethane, and vinyl chloride. Hazardous substances have been detected on the adjacent Deer Valley site in the drum residues and surrounding soil. The same contaminants are expected to be associated with the Whiting site, since the same operations occurred on both sites.

*(A HAZARDOUS SUBSTANCE means any substance, element, compound, mixture, solution, hazardous waste, toxic pollutant, hazardous air pollutant, or imminently hazardous chemical substance or mixture designated pursuant to the CWA, CERCLA, SDWA, CAA or TSCA. The term does not include petroleum products, natural gas, natural gas liquids, liquified natural gas, synthetic gas or mixtures of natural and synthetic gas. The definition of POLLUTANT or CONTAMINANT includes, but is not limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions or physical deformations, in such organisms or their offspring. The term does not include petroleum products, natural gas, natural gas liquids, liquified natural gas, synthetic gas or mixtures of natural and synthetic gas.)*

IS THE RELEASE SUBJECT TO THE LIMITATIONS ON RESPONSE: YES  or NO

EXPLAIN:

*(The LIMITATIONS ON RESPONSE provisions of the NCP (40 CFR 300.400(B) states that removals shall not be undertaken in response to a release: of a naturally occurring substance in its unaltered or natural form; from products that are a part of the structure of, and result in exposure within, residential buildings or business or community structures; or into public or private drinking water supplies due to deterioration of the system through ordinary use.)*

DOES THE QUANTITY OR CONCENTRATION WARRANT RESPONSE: YES  or NO   
 UNKNOWN

EXPLAIN: The quantity or concentration is not currently known. Although, the area affected by the two buried lagoons is less than .2 acres in size. The depth of lagoons are unknown, but according to information in the December, 1996 deposition, the lagoons were reported to be about 3 feet deep. The geophysical survey also indicated buried metal in the same area as the lagoons. The number of barrels (55 gallon size) are estimated to be less than 20. Other areas of potential contaminated subsoil/waste and buried metal were also identified in the southwest and southeast portions of the survey area, but on a smaller scale.

HAS A PRP BEEN IDENTIFIED: YES  or NO

EXPLAIN: The following have owned the entire 28 acre property: Westerhold Cooperage Co., Evans Steel Barrel Inc., Whiting Roll-up Door, Lawrence J. Carnie, and the Teamsters. The three acre Whiting site is currently owned by Whiting Roll-up Door Company (Lauren Whiting & Donald J. Whiting). The 25 acre Deer Valley site is currently owned by the Teamsters.

**IV. CONDITIONS TO WARRANT REMOVAL [40 CFR 300.415(b)(2)]:**

ACTUAL OR POTENTIAL EXPOSURE TO HAZARDOUS SUBSTANCES, POLLUTANTS, OR CONTAMINANTS: YES  or NO

EXPLAIN: The Whiting well has shown past metal and VOC contamination. The well was used for drinking purposes in the past, but according to the owner of Whiting, the well has not been used for drinking water purposes for a long time. The well is currently used for washing and for facility use. This could expose workers to dermal contact. A moderate number of groundwater wells are located within one mile of the site. These wells could be potentially exposed to site contaminants.

ACTUAL OR POTENTIAL CONTAMINATION OF DRINKING WATER SUPPLIES: YES  or NO

EXPLAIN:

See above. The well was historically used for drinking water, but currently only used for washing and facility purposes. The contaminants were detected during the Deer Valley Investigations in the late 1980's. This well was the only groundwater well sampled. Background groundwater samples were not collected at the time. Contaminants have been detected on the adjacent Deer Valley site. Buried waste lagoons are present on the Whiting and potentially the Deer Valley site. Numerous karst features in the immediate area.

**SUPERFUND REMOVAL SITE EVALUATION  
and  
REMOVAL PRELIMINARY ASSESSMENT**

**IV. CONDITIONS TO WARRANT REMOVAL [40 CFR 300.415(b)(2)] (continued):**

HAZARDOUS SUBSTANCES, POLLUTANTS, OR CONTAMINANTS IN DRUMS, BARRELS, OR BULK STORAGE CONTAINERS: YES  or NO   
 UNKNOWN

EXPLAIN: The Whiting site was occupied by two drum reconditioning companies. Aerial photos taken in the 1960's show thousands of drums stacked throughout the site property. A representative for Evans indicated that due to the lack of environmental regulations in the 60's, that drums with some waste material were likely accepted at the facility. Numerous drums have been excavated on the adjacent Deer Valley site. The residues from some of these drums have contained hazardous substances (VOCs, metals). If drums are buried on the Whiting site, they are expected to contain similar contaminants.

HIGH LEVELS OF HAZARDOUS SUBSTANCES, POLLUTANTS, OR CONTAMINANTS IN NEAR-SURFACE SOILS: YES  or NO   
 UNKNOWN

EXPLAIN:

CONDITIONS SUSCEPTIBLE TO IMPACT FROM ADVERSE WEATHER CONDITIONS: YES  or NO

EXPLAIN: Runoff and continued erosion from heavy rains could potentially expose the buried lagoons and suspected buried drums. A large eroded gully is adjacent to the area of buried lagoons.

THREAT OF FIRE OR EXPLOSION: YES  or NO   
 UNKNOWN

EXPLAIN:

POTENTIAL FOR OTHER FEDERAL OR STATE RESPONSE MECHANISMS: YES  or NO

EXPLAIN: It will be recommended that the Whiting and Deer Valley sites be combined so that the site can be addressed more efficiently. Both sites have the same history. A Site Inspection has been recommended for the combined site. The adjacent Deer Valley site has applied to Missouri's Voluntary Cleanup Program. This will not interfere with the SI.

OTHER SITUATIONS OR FACTORS WHICH POSE A THREAT: YES  or NO

EXPLAIN: The waste lagoons received waste/waste water from drum reconditioning processes. It is likely that these lagoons were not lined and not contained against overflow. This area is a highly developed karst region, with numerous sinkholes in the immediate area. High potential for groundwater contamination.

**V. POTENTIAL REMOVAL ACTIONS [40 CFR 300.415(d)]:**

*(NOTE: The following identifies potential removal actions which may be determined to be appropriate pending further review and study. The proposed actions should be considered preliminary proposals and are subject to change.)*

SITE SECURITY: YES  or NO

EXPLAIN:

**SURFUND REMOVAL SITE EVALUATION  
and  
REMOVAL PRELIMINARY ASSESSMENT**

**V. PROPOSED REMOVAL ACTIONS [40 CFR 300.415(d)](continued):**

**DRAINAGE CONTROL:**

YES  or NO

**EXPLAIN:**

**STABILIZATION OR REMOVAL OF SURFACE IMPOUNDMENTS:**

YES  or NO

**EXPLAIN:** The lagoons will be sampled during the SI to determine if hazardous substances are present. If present, a removal of lagoon wastes will be evaluated.

**CAPPING OF CONTAMINATED SOIL:**

YES  or NO

**EXPLAIN:**

**USE OF CHEMICALS TO CONTROL/RETARD SPREAD OF CONTAMINATION:**

YES  or NO

**EXPLAIN:**

**CONTAMINATED SOIL EXCAVATION:**

YES  or NO

**EXPLAIN:** If contaminated soil is found during the SI, a removal of that soil will be evaluated. Contaminated soil can be a source to potential groundwater contamination.

**REMOVAL OF DRUMS, TANKS, OR BULK STORAGE CONTAINERS:**

YES  or NO

**EXPLAIN:** Exploratory trenching is expected to take place during the SI. If drums are encountered, drum residues will be sampled. A removal evaluation will be considered if contaminants are detected.

**CONTAINMENT, TREATMENT, OR DISPOSAL OF HAZARDOUS SUBSTANCES,  
POLLUTANTS, OR CONTAMINANTS:**

YES  or NO

**EXPLAIN:**

**SUPERFUND REMOVAL SITE EVALUATION  
and  
REMOVAL PRELIMINARY ASSESSMENT**

**V. PROPOSED REMOVAL ACTIONS [40 CFR 300.415(d)](continued):**

PROVIDE ALTERNATIVE WATER SUPPLIES:

YES  or NO

EXPLAIN:

**VI. REMOVAL SITE EVALUATION DETERMINATION AND REMOVAL PRELIMINARY ASSESSMENT FINDINGS AND RECOMMENDATIONS:**

REMOVAL NOT WARRANTED - REMOVAL SITE EVALUATION TERMINATED

*(Cite one or more of the criteria from SECTION III. REMOVAL SITE EVALUATION CRITERIA, as the basis for the above determination.)*

NOT A RELEASE

NOT A FACILITY OR VESSEL

NOT A HAZARDOUS SUBSTANCE OR POLLUTANT OR CONTAMINANT

SUBJECT TO RESPONSE LIMITATIONS

INSUFFICIENT QUANTITY OR CONCENTRATION

WILLING/CAPABLE PRP IDENTIFIED

COMMENT:

REMOVAL RECOMMENDED [  EMERGENCY  TIME-CRITICAL  NON-TIME-CRITICAL ]

*(Cite one or more of the conditions or factors from Section IV. CONDITIONS TO WARRANT A REMOVAL ACTION, as a basis for recommending that a removal action be conducted.)*

EXPOSURE TO HAZARDOUS SUBSTANCES OR POLLUTANTS OR CONTAMINANTS

ADVERSE WEATHER IMPACTS

CONTAMINATED DRINKING WATER

FIRE/EXPLOSION THREAT

CONTAMINATED SOIL

DRUMS, BARRELS OR CONTAINERS

NO OTHER RESPONSE MECHANISM

OTHER FACTORS

*(Identify one or more of the removal actions listed in Section V. REMOVAL ACTIONS WHICH MAY BE APPROPRIATE, as examples of the types of response actions which are recommended.)*

SITE SECURITY

DRAINAGE CONTROL

IMPOUNDMENT STABILIZATION

REMOVAL OF DRUMS, BARRELS, ETC.

SOIL CAPPING

SOIL EXCAVATION

CONTAIN/TREAT/DISPOSE OF WASTES

CHEMICAL CONTROLS

ALT. DRINKING WATER SUPPLIES

COMMENT:

# SUPERFUND REMOVAL SITE EVALUATION and REMOVAL PRELIMINARY ASSESSMENT

## VI. REMOVAL SITE EVALUATION DETERMINATION AND REMOVAL PRELIMINARY ASSESSMENT FINDINGS AND RECOMMENDATIONS (continued):

ADDITIONAL REMOVAL SITE EVALUATION RECOMMENDED

*(Cite one or more of the conditions or factors from Section IV. CONDITIONS TO WARRANT A REMOVAL ACTION, as a basis for recommending that additional site evaluation be performed.)*

<input type="checkbox"/>	EXPOSURE TO HAZARDOUS SUBSTANCES OR POLLUTANTS OR CONTAMINANTS	<input checked="" type="checkbox"/>	ADVERSE WEATHER IMPACTS
<input type="checkbox"/>	CONTAMINATED DRINKING WATER	<input type="checkbox"/>	CONTAMINATED SOIL
<input checked="" type="checkbox"/>	DRUMS, BARRELS OR CONTAINERS	<input checked="" type="checkbox"/>	OTHER FACTORS
<input type="checkbox"/>	FIRE/EXPLOSION THREAT	<input type="checkbox"/>	
<input type="checkbox"/>	NO OTHER RESPONSE MECHANISM	<input type="checkbox"/>	

*(Identify one or more of the removal actions listed in Section V. REMOVAL ACTIONS WHICH MAY BE APPROPRIATE, as examples of the types of response actions which may be appropriate pending the results of further site evaluation.)*

<input type="checkbox"/>	SITE SECURITY	<input checked="" type="checkbox"/>	IMPOUNDMENT STABILIZATION
<input checked="" type="checkbox"/>	REMOVAL OF DRUMS, BARRELS, ETC.	<input type="checkbox"/>	SOIL EXCAVATION
<input type="checkbox"/>	CONTAIN/TREAT/DISPOSE OF WASTE	<input type="checkbox"/>	ALTERNATIVE DRINKING WATER SUPPLIES
<input type="checkbox"/>	DRAINAGE CONTROL	<input type="checkbox"/>	
<input type="checkbox"/>	SOIL CAPPING	<input type="checkbox"/>	
<input type="checkbox"/>	CHEMICAL CONTROLS	<input type="checkbox"/>	

COMMENT: A review of all available information and a geophysical survey have indicated that buried waste lagoons (2) and potentially buried drums are present on the Whiting site. The major area of concern is in the northwest portion of the site or survey area. The lagoons and buried metal were detected in an area approximately .2 acres in size. The horizontal area of potential source areas has been determined by the geophysical survey, but the vertical extent is not known. Available information suggests that the lagoons were about three feet deep. These source areas will be sampled during the SI. If contaminants are found in the source areas and/or surrounding soil, a second Removal Site Evaluation may be warranted.

## VII. ADDITIONAL INFORMATION OR COMMENTS

## VIII. CERTIFICATION

SIGNATURE: *R. Lance Tinsley*

*03/28/97*  
DATE

POSITION/TITLE: *Environmental Specialist*

OFFICE/AGENCY: *MO Dept. of Natural Resources, Div. of Environmental Quality,  
Hazardous Waste Program*





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII  
726 MINNESOTA AVENUE  
KANSAS CITY, KANSAS 66101

APR 01 1997

Ms. Julie Warren  
Chief, Site Evaluation Unit  
Hazardous Waste Program  
Missouri Department of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102-0176

Subject: Whiting Roll-up Door Site Integrated Preliminary Assessment/Removal Site Evaluation

Dear Ms. Warren:

The Environmental Protection Agency (EPA) has completed its review of the subject document. The document is well written and well referenced. I have only two minor comments regarding the document. Following are the comments/questions:

1. Page 7, Fourth Paragraph. In reference to the crushed drums, buried metal debris and other materials found during the trenching, what was the disposition of this material following completion of the investigation? Were the trenches backfilled? What is the disposition of the Investigation Derived Waste (IDW)?
2. Page 20, Third Paragraph, First Sentence. The term "moderate" is used to describe a number of private drinking water wells. Please specify what is meant by "moderate". Terms such as "relatively", as in "relatively few", or "moderate" as well as "low" or "high" should be avoided or more accurately described by referencing a scale to determine what is meant by "low" or "high".

EPA agrees with the Tentative Disposition of the site and the lead for the site will remain with the Missouri Department of Natural Resources for further investigations at the site.

If you should have further questions or comments regarding this review please contact me at (913) 551-7742.

Sincerely,

Bryant K. Burnett  
Site Assessment Manager  
Superfund Division

<b>EPA</b>	FEDERAL HAZARDOUS WASTE SITE <b>TENTATIVE DISPOSITION</b>	REGION <b>VII</b>	SITE NUMBER <b>MO</b>
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File this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency, Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, D.C. 20460.

**I. SITE IDENTIFICATION**

<b>A. SITE NAME</b> <b>WHITING ROLL-UP DOOR</b>	<b>B. STREET</b> <b>5015 N. HIGHWAY 67</b>		
<b>C. CITY</b> <b>FLORISSANT</b>	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; border-right: 1px solid black;"><b>D. STATE</b> <b>MO</b></td> <td><b>E. ZIP CODE</b> <b>63034</b></td> </tr> </table>	<b>D. STATE</b> <b>MO</b>	<b>E. ZIP CODE</b> <b>63034</b>
<b>D. STATE</b> <b>MO</b>	<b>E. ZIP CODE</b> <b>63034</b>		

**II. TENTATIVE DISPOSITION**

Indicate the recommended action(s) and agency(ies) that should be involved by marking 'X' in the appropriate boxes.

RECOMMENDATION	Action Agency				
	Mark 'X'	EPA	STATE	LOCAL	PRIVATE
<b>A. NO ACTION NEEDED - NO HAZARD</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>B. INVESTIGATIVE ACTION(S) NEEDED (If yes, complete Section III.)</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>C. REMEDIAL ACTION (If yes, complete Section IV.)</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D. ENFORCEMENT ACTION (If yes, specify in Part E whether the case will be primarily managed by the EPA or the State and what type of enforcement action is anticipated.)</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**E. RATIONALE FOR DISPOSITION** The three acre site was part of the original 28 acres that was occupied by two drum reconditioning companies, Whiting, and the Teamsters. The adjacent Deer Valley site, owned by the Teamsters, consists of the other 25 acres. During the investigation of the Deer Valley site, numerous buried drums along with door tracks from the Whiting operation, were excavated. The Whiting property was not included as part of the site. During the current investigation of the Whiting site, a geophysical survey revealed buried lagoons and potential buried drums. The PAScore is greater than 28.5, therefore, the site qualifies for further action under CERCLA. The Whiting Roll-up Door site is in an area of numerous karst features. There are a moderate number of groundwater wells located within 1-2 miles from the site. A Site Inspection (SI) is recommended. The SI should be conducted on a combined Whiting and Deer Valley site since the two sites have the same site history.

<b>F. INDICATE THE ESTIMATED DATE OF FINAL DISPOSITION (mo, day, yr)</b>	<b>G. IF A CASE DEVELOPMENT PLAN IS NECESSARY, INDICATE THE ESTIMATED DATE ON WHICH THE PLAN WILL DEVELOPED (mo, day, yr)</b>
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**H. PREPARER INFORMATION**

<b>1. NAME</b> <b>R. Lance Livesay</b>	<b>2. TELEPHONE NUMBER</b> <b>573-751-3176</b>	<b>3. DATE (mo., day, &amp; yr.)</b> <b>03/27/97</b>
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**III. INVESTIGATIVE ACTIVITY NEEDED**

**A. IDENTIFY ADDITIONAL INFORMATION NEEDED TO ACHIEVE A FINAL DISPOSITION.**  
**A complete source characterization and target evaluation.**

**B. PROPOSED INVESTIGATIVE ACTIVITY (Detailed Information)**

1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO.	2. SCHEDULED DATE OF ACTION (mo, day, & yr)	3. TO BE PERFORMED BY (EPA, Contractor, State, Etc.)	4. ESTIMATED MANHOURS	5. REMARKS
<b>a. TYPE OF INSPECTION</b>				
(1) Site Inspection	04/01/97	STATE		SI on a combined Whiting/Deer Valley Site
(2) -----				
(3) -----				
<b>b. TYPE OF MONITORING</b>				
(1) -----				
(2) -----				
<b>c. TYPE OF SAMPLING</b>				
(1) -----				
(2) -----				

Continued From Front

d. Type of Lab Analysis				
(1)				
(2)				
e. OTHER (specify)				
(1)				
(2)				

C. ELABORATE ON ANY OF THE INFORMATION PROVIDED IN PART B (on front and above) AS NEEDED TO IDENTIFY ADDITIONAL INVESTIGATIVE WORK.

D. ESTIMATE MANHOURS BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES	1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES
a. EPA		b. STATE	
c. EPA CONTRACTOR		d. OTHER (specify)	

IV. REMEDIAL ACTIONS

A. SHORT TERM/EMERGENCY ACTIONS (On Site and Off-Site): List all emergency actions needed to bring site under immediate control, e.g., restrict access, provide alternate water supply, etc. See instructions for a list of the actions to be used in the space below.

1. ACTION	2. EST. START DATE (mo, day, yr)	3. EST. END DATE (mo, day, yr)	4. ACTION AGENCY EPA, State, Private Party	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION; INDICATE THE MAGNITUDE OF THE WORK REQUIRED.
				\$	
				\$	
				\$	
				\$	
				\$	
				\$	

B. LONG TERM STRATEGY (On Site and Off-Site): List all long term solutions, e.g., excavation, removal, ground water monitoring wells, etc. See instructions for a list of Key Words for each of the actions to be used in the spaces below.

1. ACTION	2. EST. START DATE (mo, day, yr)	3. EST. END DATE (mo, day, yr)	4. ACTION AGENCY EPA, State, Private Party	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION; INDICATE THE MAGNITUDE OF THE WORK REQUIRED.
				\$	
				\$	
				\$	
				\$	
				\$	
				\$	

C. ESTIMATED MANHOURS AND COST BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL EST. MAN-HOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES	1. ACTION AGENCY	2. TOTAL EST. MAN-HOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES
a. EPA			b. STATE		
c. PRIVATE PARTIES			d. OTHER (specify)		